Manitoba Medical Review

Manitoba Medical Association
Annual Business Meeting, 1953
Report of
Nominating Committee
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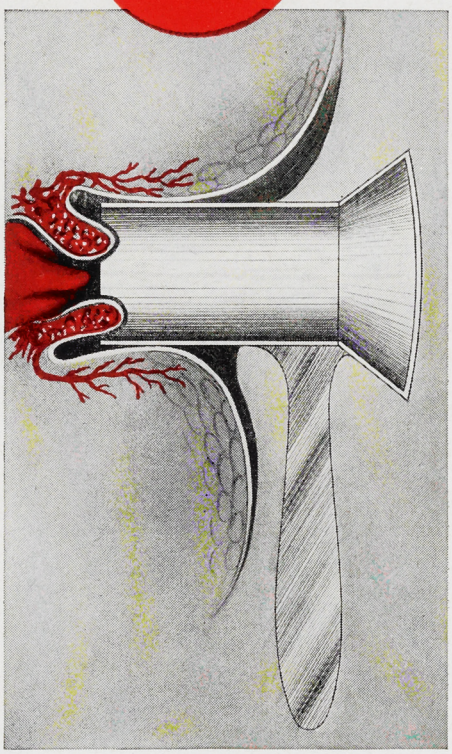
New Effectiveness in Hemorrhoids...



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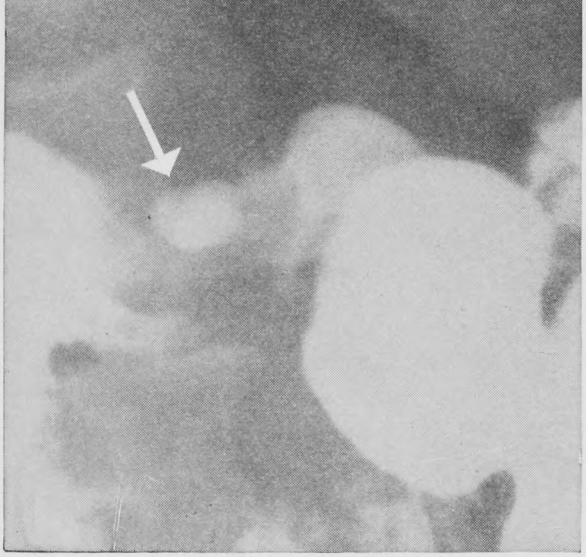

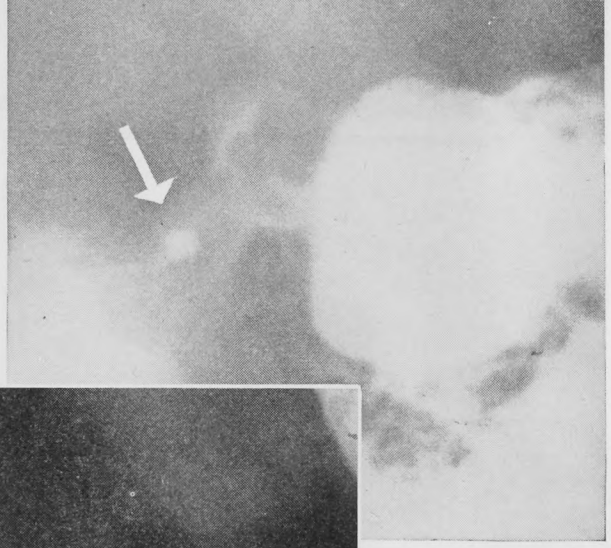

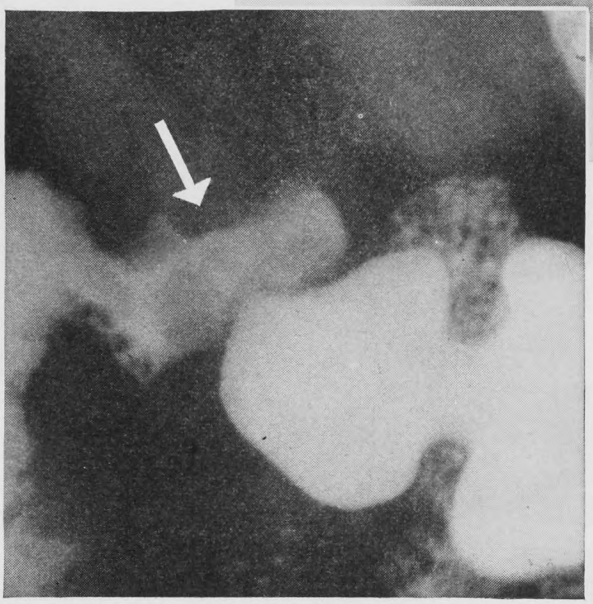

Top left: "X-rays revealed a huge ulcer crater in the duodenal bulb."

Top right: "Twelve days later the crater was strikingly reduced in size."

Bottom: "Two weeks later another spot roentgenogram revealed complete healing."

Rapid Healing of Duodenal Ulcer with Pro-Banthine®

CASE REPORT

J. L., male, age 39, refused surgery even though roentgen study revealed a huge ulcer crater in the duodenal bulb (top left). He was placed on a Pro-Banthine regimen of 30 mg. four times a day. After twelve days of therapy the crater was strikingly reduced in size (top right).

Two weeks later another spot roentgenogram revealed complete healing (bottom). "This ulcer crater was unusually large, yet on 30 mg. of Pro-Banthine [q.i.d.] the patient's symptoms were relieved in forty-eight hours and a most dramatic diminution in the size of the crater was evident within twelve days."

Schwartz, I. R.; Lehman, E.; Ostrove, R., and Seibel, J. M.: A Clinical Evaluation of a New Anticholinergic Drug, Pro-Banthine, to be published.

Pro-Banthine (brand of propantheline bromide) is a new and improved anticholinergic agent with minimal or no side reactions.

Pro-Banthine inhibits neural impulses at both the sympathetic and parasympathetic ganglia and at the postganglionic nerve endings of the parasympathetic system. It is valuable in many conditions in addition to peptic ulcer, notably gastritis, pancreatitis, intestinal hypermotility, genitourinary spasm and hyperhidrosis.

Pro-Banthine is available in three dosage forms: 15 mg. sugar-coated tablets; Pro-Banthine (15 mg.) with Phenobarbital (15 mg.), sugar-coated tablets, for use when anxiety and tension are complicating factors; ampuls of 30 mg. for more rapid effect and in instances when oral medication is impractical or impossible.

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The Manitoba Medical Review

Vol. 33 OCTOBER, 1953 No. 8

Medicine

The Management of Diabetes in Pregnancy

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Introduction

The discovery of insulin in 1921 means that girls who develop diabetes in childhood will reach adult life. Amenorrhoea is seldom permanent, and fertility is not greatly affected in the young adult diabetic female.

Bachman and Block, of the University of Pennsylvania, state that the incidence of diabetes associated with pregnancy is about 1:500 cases. This approximates the incidence of diabetes in women of the child-bearing age. There is no significant sterility among diabetic women under modern conditions.

On review of the records of the Winnipeg General Hospital, from 1948 to 1952, we have 22 pregnant diabetics among 13,424 maternity cases.

It is known that many years before the development of clinical diabetes a patient may, during the course of a pregnancy, suffer from complications very similar to those which are often seen in the established diabetic during pregnancy.

It is becoming increasingly clear that these complications are not entirely due to the diabetic state and are not related solely to abnormality in carbohydrate metabolism. Interest has been centered upon the likelihood that a dysfunction of the pituitary gland may be common to both types of patients. Thus an overproduction of the anterior pituitary diabetogenic growth factor has been postulated as the cause of these complications.

Hydramnios, toxemia, and intra-uterine death of a pathologically large baby are common complications of a diabetic pregnancy, but they also occur in patients who are not diabetic.

It is hoped that a closer study of established diabetics during the course of their pregnancies may lead to a greater understanding of the problems concerned with hydramnios, toxemia, and intra-uterine foetal death in general.

The maternal mortality of diabetics has dropped from 45%-50% in 1909 to 2% in 1949. However, the large and real problem of foetal mortality remains in the neighborhood of 25%.

Diagnosis

In the majority of cases the clinical problem usually presents itself when a known diabetic woman becomes pregnant. It is important, however, to remember that diabetes may develop during the course of a pregnancy or that pregnancy may bring to light a latent diabetes.

The occurrence of an intra-uterine foetal death within the last 2-3 months of pregnancy or the delivery of a pathologically large baby, whether stillborn or alive, should make one suspicious of the possibility of diabetes.

The more common diagnostic problem however is raised by the discovery of a reducing substance in the urine on routine testing.

Lactosuria is not common except in the last 6 weeks of pregnancy, being seen in only 1 or 2 per cent of gravidae prior to that time. During the last 6 weeks its incidence rises to 8%, and to 30% or more the day before delivery. Lactosuria is most marked and frequent after delivery. On the other hand, it is very common to get traces of glucose in the urine throughout the ante-natal period; this is due to a lowered renal threshold for sugar which develops early in pregnancy. Some patients show a glycosuria at blood sugar levels below 120 mgm.%, and as a consequence glucose may be encountered frequently in the urine shortly after meals. Any reliance on urinary sugar in calculating insulin dosage may be very misleading.

It is an old rule that every patient who shows sugar in the urine should be regarded as a diabetic until proved otherwise. Otherwise diabetes will be overlooked through the erroneous assumption that urinary sugar is due to lactosuria or lowered renal threshold.

By means of a fasting blood sugar of 0.13 mgm% and a glucose tolerance test, when blood sugar reaches 0.17 mgm % the diagnosis of diabetes can be established with certainty.

Theory of Hormonal Imbalance

A new approach to the problem of the maintenance of intra-uterine life to a point where foetal survival can be expected was suggested by Smith and Smith in 1934. They found increased chorionic gonadotrophin and low pregnanediol excretion, accompanied by a low serum and urine oestrogen in toxic and diabetic patients. They postulated that the placenta fails to use the chorionic gondotrophin in the production of oestrogen and progesterone. Therefore they administer stilbesterol in gradually increasing doses from the 7th week, which causes increased vascularity of the placenta, improved nutrition of chorionic epithelium, causing increased oestrogen and progesterone and a decrease in chorionic gonadotrophin.

White accepts hormonal imbalance but uses progesterone and oestrogen in a purely substitutive manner. Over a period of 15 years she reported 439 viable births with a foetal mortality of 18%.

With the passage of time certain inconsistencies have developed and other contradictory evidence has been presented.

Reis in 1950 had a comparable viable birth mortality rate of 13.6% without the use of stilbesterol.

Hall and Tillman, of Sloane Hospital for Women in New York, report a foetal mortality of 18.2% from 1923 to 1949 without the use of stilbesterol.

Quote From Reis Article

"The administration of stilbesterol in increasing daily doses is presumed to stimulate progesterone secretion, thus restoring the normal hormonal balance and preventing immature and premature labor and toxemia of pregnancy. Recently Smith and Smith have shown that the administration of stilbesterol to normal, non-diabetic women resulted in larger, longer, heavier and more mature babies with a definite decrease in the incidence of prematurity. Sommers, Cawley and Hertig investigated the effects of this same stilbesterol therapy upon the weights of baby and placenta in the same group of women. They stated that 'weight of both baby and placenta are increased in stilbesterol treated full-term and premature births, and that stilbesterol stimulates an increase in weight and presumably size of both infant and placenta.' They further found 'a more frequent occurrence of marked placental calcification and intervillous thrombosis in full-term stilboesterol treated placentas and a definite incidence of mature chrionic villi and intervillous thrombosis in placentas of stilbesterol treated patients who delivered prematurely.' He further states:

"It is difficult to reconcile these reports. On the one hand, increasing and continuing administration of stilbesterol is used because it prevents immature and premature delivery, because it lowers toxemia, and, finally, because it is said to increase foetal salvage.

Yet, in White's report, labor was terminated early in the vast majority of instances by Caesarean section in the 36-37 weeks to prevent foetal over-maturation and placental over-maturation with their accompanying obstetrical problems of oversize and overweight foetuses and of foetal death in utero.

On the other hand, the same increasing and continuing administration of stilbesterol is observed by Smith and Smith to result in larger, longer, heavier and more mature babies.

Furthermore, stilbesterol therapy would seem to be contra-indicated in diabetic, pregnant women to avoid rapid and early severance of the placenta and to prevent some of the inexplicable foetal deaths in utero which are known to occur in the later weeks of pregnancy."

Further confusion regarding the entire problem results from a report by Davis and Fugo who could find no evidence that stilbesterol stimulates production of steroids by the corpus luteum or the syncytium.

In conclusion, quoting Eastman: "There is not a shred of evidence to document the belief that endocrine treatment of diabetes offers any advantage to the mother or the child. And when it is remembered that as well the theoretical basis for this concept leaves much to be desired, it would seem high time that this concept be discarded into the limbo of discountenanced theories despite the aggrandizement it has received in the literature."

The Effects of Diabetes on Pregnancy

The effects of diabetes on pregnancy depends on how well the disease is controlled. If carefully regulated many deadly consequences can be eliminated. However, even with the best modern care, the disease still has harmful influences on pregnancy, causing greatly increased stillbirth and neonatal death rate.

1. Incidence of spontaneous abortion and premature delivery is increased.

2. The frequency of toxemia of pregnancy is greatly increased from 7% to 29%.

3. Foetal death in utero and intra-partal loss is much more common than in non-diabetics—25%.

4. The incidence of excessively sized infants is many times that met in normal pregnancies—25% are more than 10 pounds.

Therefore, (1) Mechanical difficulties of labor are increased. (2) Caesarean section is more often necessary.

5. Hydramnios in practically all. In 25% it is markedly increased. Associated with toxemia, oversize babies, foetal loss.

6. Congenital malformations—yet only account for 3% of neonatal deaths.

7. Lactation is inhibited—only 50% are able to nurse.

8. Neonatal period is associated with especial hazards—hypoglycemia—anoxia.

A few of these topics will be enlarged upon.

Toxemia

Early observers were impressed by frequency of pre-eclamptic toxemia in last trimester of a diabetic pregnancy—also how often it is followed by intra-uterine death of the foetus. Its incidence varies considerably in the different centres. The vascular damage that may be sustained in diabetic women prior to pregnancy is undoubtedly a provocative factor in the development of gestational toxemia. This is particularly the case in juvenile diabetics and those whose disease has been present for many years, also in those with maternal vascu-

lar disease or hypertension. Under these circumstances toxemia may develop in mid-pregnancy, and the foetal loss is high.

Where there is no such background, toxemia is a disease of the last few weeks of gestation; this also applies to the diabetic woman.

Thus, the late gestational toxic foetal loss among diabetics, though important and proximate, is probably contributory rather than basic.

Hydramnios

This complication is associated with toxemia, excessive foetal size and malformations. The infant mortality is likely that of the associated conditions, plus the accidents of delivery peculiar to hydramnios, such as malpresentations, prolapse of cord, etc. Its development is not related to hyperglycemia, nor does examination of amniotic fluid show increased glucose content.

The nature of the lethal effect under consideration is obscure. There is a lower foetal mortality in the mothers requiring no insulin and those in whom the onset of the disease occurred during pregnancy.

Beyond this there appears to be no statistical difference in foetal mortality between those with mild and those with severe diabetes, or between those cases of short and long duration, though poor control seems to favor its development. Degree of maternal vascular degeneration is a more important factor in foetal mortality.

That still other factors are present is indicated by the sudden intra-uterine deaths in well controlled diabetics without evidence of vascular degeneration.

Foetal mortality is high five years before the actual onset of diabetes.

The main objective is rigid control of the disease by close collaboration between the obstetrician and internist.

1. Once diagnosed, admit for careful check of gestational status and stabilization of diabetes.

2. Re-admit every other month, or oftener, if fluctuating carbohydrate tolerance or complications.

3. Visit obstetrician and internist every 2nd week. Fasting blood sugars—and regulate diet and insulin by it.

4. Should be re-admitted at 37th week and remain in till baby is born, for—

(1) Stabilization of diabetes.

(2) Consider when and how to deliver.

The objective is optimal rate and degree of gain of maternal weight—25 pounds is the maximum.

Diet: Protein 2 gms. per kilo per day, then fat to carbohydrate as 1:2 to total 30 calories per kilo per day.

Watch for changes in insulin requirements, and change to regular insulin towards the end.

In the first trimester—often nausea and vomiting, which are difficult to control.

In the last trimester—watch for shifting sugar tolerance, signs of pre-eclampsia; watch for hypoglycemia—err towards slight glycosuria.

In puerperium—may be difficult to control due to wide and sudden fluctuations of blood sugar due to endocrine and metabolic changes, associated with reconversion of body mechanisms, puerperal infection, and conversion of glucose to lactose and possibly the withdrawal of foetal pancreas may cause difficulties in balancing.

Mode of Delivery

The risk of intra-uterine death of the foetus in diabetic pregnancies gradually rises from the 32nd to the 40th week, and after the 36th week exceeds the risk of neo-natal death. There has been a growing tendency in various centres to terminate gestation at or about the 36th week.

The saving of foetal life is accomplished by reduction of frequency of stillbirths, particularly those due to early death in utero. There is also a coincidental reduction of a number of the late complications of pregnancy among this group.

Caesarean section has been increasingly favored in recent years as the method of delivery of a diabetic pregnancy. Some of the reasons for this are:

1. Spontaneous labors in these pregnancies are apt to be prolonged. Section forestalls the ever present possibility of foetal death in utero.

2. The foetus stands the normal buffeting of labor and vaginal delivery poorly. The foetus is likely to be large—60% plus 8 lbs. 15-25% plus 10 lbs. and has an inherent tendency to anoxia.

3. When therapeutic termination is deemed necessary, at term or especially earlier, labor may be difficult to induce—unless the patient is a multipara and the condition of her uterine cervix is favorable.

4. In delays in the onset or course of labor the maternal diabetes may be difficult to control.

Given a living foetus in utero, the risks attending the different methods of delivery have been examined by Peel and Oakley (British Congress Obstetrics and Gynaecology, 1949).

One foetus in six (1:6) suffers an intra-partal death during labor or delivery per vaginum, and this loss occurs regardless of whether the labor be spontaneous or induced.

On the other hand, only 1:70 is lost during delivery by Caesarean section. Given a live birth neo-natal loss is about the same, whether the child has been delivered per vaginum or by section. It is of interest that following section from 36 weeks on, the risk of neo-natal loss is the same regardless of maturity.

Eastman suggests the following outline of management: The patient is at 37 weeks:

1. Diabetes is well regulated.

2. Size of infant determined by palpation.

3. Sterile vaginal examination to determine if cervix is favorable for induction by: (a) head below spines; (b) cervix admits one finger or more; (c) cervical canal less than 1 cm. in length; (d) infant no more than 3000-3500 gms.; then strip back membranes and rupture them.

If cervix is not wholly favorable for induction, determine "How urgent is immediate delivery?"

If in 1. Presence of associated toxemia; 2. An obviously large child; 3. Inability to control diabetes. With any of these indications present, do a Caesarean section. If they are not present and cervix is unfavorable the patient is allowed to go to term in the hospital, or to such time as cervix is favorable to induction. The obstetrician should be prepared to intervene with a low segment operation if there is undue delay in the onset of labor, uterine inertia or foetal distress.

As a rule, the following are indications for Caesarean section:

1. The presence of toxemia or evidence of vascular disorder as shown by eye grounds.
2. A very large baby.
3. Hydramnios.
4. Previous foetal loss.
5. Diabetes of 10 years standing or more.

With such a policy it will be found that the incidence of Caesarean section in those patients will run from 50-75%.

Spinal anaesthetic is favored for the operation, or local anaesthetic in suitable patients.

Newborn

The successful management of the newborn baby of the diabetic mother demands that he be cared for as if he were a premature baby, irrespective of his actual age, size or weight. The three real dangers are anoxia, lethargy and hypoglycemia.

1. Anoxia is prevented by the upper respiratory passages being cleared promptly, and kept cleared and oxygen administered. This is accomplished by a constant temperature incubator with postural drainage.

If born by Caesarean section, aspirate the stomach immediately at birth.

2. Lethargy is overcome by external stimulation during the first few hours of life.

3. In view of the frequent oedema, most pediatricians do not favor attempts at oral feedings. The bulk of the evidence does not support the concept of hypoglycemia. Reis of Chicago gives small amounts of 50% glucose by medicine dropper during the first few hours. These babies are slow and lethargic and difficult to feed. Whatever kills them does so within the first two days; once past this crisis they do very well.

Only half the mothers are able to nurse their child.

In Conclusion

1. Hormone therapy is not necessary in the management of the diabetic pregnant woman.

2. The use of Caesarean section must be liberalized if optimal results are to be gained.

3. Meticulous diabetic, obstetric and pediatric management will yield results better than have been achieved in the past.

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Review of Diabetic Pregnancies
Winnipeg General Hospital
1948 - 1952

13,424 Cases

- 22 Deliveries of diabetic mothers—therefore an incidence of 1:609 pregnancies.
  - 2 Therapeutic abortions.
  - 1 Delivered in an outside hospital.
  - 6 Sterilizations associated with Caesarean sections and therapeutic abortions.
- 15 Live births.
  - 7 Deaths in peri-natal period.
    - 3 deaths in utero.
    - 2 stillbirths.
    - 2 neonatal deaths.

Foetal mortality, 31.8%.

Maternal mortality, 0%.

Review of Obstetrical Cases
22 Cases

Vaginal Delivery

- 12 cases, 55%.
  - 4 foetus fine.
  - 2 foetus lethargic.
  - 2 neonatal deaths.
  - 2 stillbirths.
  - 2 deaths in utero.

  Foetal mortality, 50%.

Caesarean Section

- 10 cases, 45%.
  - 8 foetus fine.
  - 1 lethargic
  - 1 death in utero—macerated foetus.

  Foetal mortality, 10%.

Total foetal mortality, 31.8%.

Maternal mortality, 0.

Vaginal Deliveries

Fetus Fine

Mrs. K. G.—1949
P. 0, Gr. 1 — Prev. Obst. History
Diabetic 5 years — Vaginal
Toxic — Baby's weight 7 lbs. 8 oz.
Weeks 38

Mrs. A. M.—1949
P. 2, Gr. 3 — Vaginal
Diabetic—years — Previous O.K.
Not toxic — Baby's weight 7 lbs. 12 oz.
Weeks 38

Mrs. A. G.—1951
P. 2, Gr. 3 — Vaginal
Diabetic 2 years — 1 previous death
Not toxic — Baby's weight 8 lbs. 3 oz.
Weeks 35 — 1 previous O.K.

Mrs. R. S.—1948
P. 0, Gr. 2 — Vaginal 1947 miscarriage 6 mo.
Diabetic 4 years — Baby's weight 5 lbs. 14 oz.
Toxic?
Weeks 36

Lethargic Fetus

Mrs. K. G.—1952
P. 1, Gr. 2 — Vaginal
Diabetic 7 years — Baby's weight 8 lbs.
Toxic
Weeks 36

Mrs. S. R.—1952
Vaginal — P. 9, Gr. 1
Baby's weight 9 lbs. 4½ oz. — Diabetic 2 years
Toxic
Weeks 37

Neonatal Deaths

Mrs. C. B.—1951
P. 0, Gr. 1 — Vaginal delivery
Diabetic 17 years — 1920 gms. premature
Toxic — Cerebral haemorrhage
Weeks 29 — Sterilized 1952

Mrs. M. M.—1948
Vaginal — P. 1, Gr. 2
Breech — Diabetic 1 year
Marginal placenta — Not toxic
Baby's weight 3 lbs. 15 oz. — Weeks 29

Stillbirths

Mrs. S. M.—1948
P. 4, Gr. 5 — Vaginal delivery
Diabetic 1 year — Impacted shoulder
Not toxic — Previous stillbirths
Weeks 38 — Baby's weight 10 lbs. 8 oz.

Mrs. M. K.—1951
Vaginal delivery — P. 1, Gr. 2
I previous child O.K. — Diabetic 5 years
Baby's weight 4 lbs. 3 oz. — Not toxic
Weeks 36

Deaths in Utero

Mrs. R. Z.—1949
P. 0, Gr. 1 — Macerated
Diabetic 4 years — Baby's weight 4 lbs. 8 oz.
Toxic
Hydramnios
Weeks 38

Mrs. S. M.—1952
Vaginal — P. 5, Gr. 6
Previous stillbirths — Diabetic 3 years
Sterilized 1952 — Toxic—edema
Baby's weight 5 lbs. 14 oz. — Weeks 40

Caesarean Section

Healthy Fetus

Mrs. McI.—1950
Caesarean — P. 2, Gr. 3
2 previous stillbirths — Diabetic 20 yrs.
Baby's weight 4 lbs. 9 oz. — Toxic

Mrs. L. N.—1949
Low section — P. 0, Gr. 3
1 stillbirth 38 weeks — Diabetic 4 years
1 miscarriage—2 months — Toxic—albumin
Baby's weight 4 lbs. 14 oz.

Mrs. E. P.
Caesarean — Diabetic—years
Vaginal delivery prev. stillborn — Toxic
Baby's weight 6 lbs. 11 oz. — Weeks 38

Mrs. J. P.—1948
Section—39 weeks — P. 9, Gr. 1
Diabetic—years
Toxic

Mrs. R. R.—1948
Low section with sterilization — P. 1, Gr. 2
1st child stillbirth — Diabetic 16 yrs.
Baby's weight 4 lbs. 15 oz. — Toxic
hydramnios
Weeks 36

Mrs. A. M.—1949
Low section after trial labor — P. 5, Gr. 7
1 miscarriage 5½ months — Diabetic 1 year
Baby's weight 14 lbs. 1½ oz. — Not toxic
Weeks 40

Mrs. M. H.—1949
Repeat section with ligation — Diabetic 4 years
Baby's weight 8 lbs. 8 oz. — Toxic
P. 1, Gr. 2

Mrs. M. H.
Section with sterilization — P. 2, Gr. 3
2 previous sections — Diabetic 3 years
13 years—14 lbs. S.B. — Toxic
10 years—10 lbs. O.K. — hydramnios
Baby's weight 7 lbs. 4½ oz. — Weeks 34

Fetus Lethargic

Mrs. N. C. —1952
Low section — P. 0, Gr. 1
Hydramnios — Diabetic 19 yrs.
Baby weight 5 lbs. 5½ oz. — Not toxic

Death in Utero

Mrs. V. H.—1950
Low section — P. 1, Gr. 2
Macerated fetus — Diabetic—years
Toxic
3150 gms.
Weeks 36

Fractionation of Serum Proteins:
A Simple Method, and a Survey of Clinical Experience

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Eunice Wade, B.Sc., R.T. (C)
Deer Lodge Hospital (D.V.A.), Winnipeg, Man.

Part I.

The serum protein is a complex made up of a considerable number of components of varying specificity. For example, it includes such substances as mumps antibody; prothrombin; transferrin and so forth. It would be ideal to be able to express serum protein in terms of its various components. This is not possible at present. Separation of serum protein into main subdivisions is more practical and has been studied by many observers. Within the past decade the widespread use of electrophoretic apparatus has given an impetus to such studies, 63, 69, 106. Parenthetically it can be stated that these studies have been rather disappointing from the diagnostic point of view. However such studies have indicated that older methods of fractionation into albumin and globulin alone, leading to the expression of serum protein fractions in terms of albumin/globulin ratios are much too gross to have clinical significance in most cases.

The use of electrophoresis is not suitable for routine clinical laboratories because of the cost of the apparatus and because few samples can be run in a day. If data approximating that obtainable by electrophoresis could be made available by simple laboratory manipulation such a method could be useful in the routine laboratory.

Chemical methods of fractionation have been in use 42, 46, 67, 48, 55, 75, 77, 89, 114, 115, 125 and have been found satisfactory. These methods depend on separation of protein fractions by salting out, and then the protein in each fraction is determined by means of its nitrogen content, biuret reaction[29] or some other characteristic of protein.

Serum proteins have also been estimated by virtue of the turbidity of their solutions when the protein is precipitated under standard conditions 4, 25, 41, 56, 136. These methods have shown reasonable agreement with other more elaborate methods.

A combination of salting-out and turbidity determination has been in use in this laboratory for three years. It is very simple, and it has proven to be clinically satisfactory. The purpose of this report is to outline the method, and to present the results obtained in a variety of clinical conditions with reports culled from the literature on the same conditions where protein fractionation has been done by electrophoresis.

I Method

Reagents

1. 15% sodium chloride solution.
2. 26.8% anhydrous sodium sulfate solution.
3. 19.6% anhydrous sodium sulfate solution.
4. 15.8% anhydrous sodium sulfate solution.
5. 5% sulfosalicylic acid solution.

The sodium sulfate solutions are stored, stoppered, in an incubator. They should have a pH of approximately 7.0 as determined by pH meter.

Total Protein

Into a 50 ml volumetric flask pipette 0.5 ml of serum; make up to volume with 15% saline. Invert flask several times to mix. 4 ml of this diluted serum is placed in a coleman spectrophotometer cuvette; layer onto this 6 ml of 5% sulfosalicylic acid solution. Mix by shaking.

Fractions

Into three large Coleman colorimeter cuvettes place 10 ml of 26.8, 19.6 and 15.8% sodium sulfate respectively. To each cuvette add 0.2 ml of serum layering it on the surface. Stopper and invert several times, to mix. Place in the incubator for 30 minutes. Mix by inversion and read in a Coleman Jr. spectrophotometer using 520 mu wavelength, and using as a blank, water. If the serum of the patient is icteric a blank of 0.2 ml of serum in 15% saline, 10 cc, is required. The cuvettes should be covered during the readings, so that stray light does not enter the tube.

Calculation

Tube I (26.8% sodium sulfate) gives the total globulin. Albumin is determined by subtracting the globulin from the total protein. Tube 2 (19.6% sodium sulfate) gives the beta plus gamma globulin. Alpha globulin is obtained by subtracting the value of protein in this tube from that of the total globulin. Tube 3 (15.8% sodium sulfate) gives the gamma globulin. The value of tube 2 minus tube 3 gives the beta globulin value.

Calibration

Pooled serum protein was used and the protein of the pool was determined by Kjeldhal nitrogen determination. Serial dilutions of the pool were made and total protein turbidities determined on these using the method described. Calibration for the fractions was then set up arbitrarily, using 4/10 the total protein figure. The calibration of these fractions was then checked by measuring the particular fraction by turbidity; then obtaining the precipitate by centrifugation or filtration and determining the protein present by Kjeldhal nitrogen content. The results so obtained checked well with the turbidity method so calibrated.

In order to obviate repeated Kjeldhal nitrogen determinations for calibration, the McFarland barium sulfate turbidity standards were made up

(134) and the mean readings of five separate determinations were taken. The results are shown in table 1.

Table 1

Units McFarland Turbidity	Equivalent Protein %
1	1.8%
2	3.6%
3	5.1%
4	6.3%
5	7.6%
6	8.5%

Reproducability

This was tested in two series of experiments:

(1) Serial determinations were made on the sample pool, 12 determinations per set, and the probable error calculated. (Table 2).

Table 2

Fraction Determined	Probable Percentage Error
Total protein	3%
Albumin	4%
Alpha globulin	16%
Beta globulin	20%
Gamma globulin	4%

It can be seen that the probable error involved in the determination of alpha and beta globulins is so large that only gross changes in these fractions could produce significant alterations.

(2) A series of twelve patients had blood drawn for serum protein estimations at 8 a.m. and at 10 a.m. on the same day. The first six of such patients are tabulated below, indicating the degree of variation found.

Table 3

Patient	Total	Albumin	Globulin	Alpha	Beta	Gamma
1 8 a.m.	6.6	4.1	2.5	0.81	0.72	1.0
10 a.m.	7.0	4.5	2.6	0.89	0.81	0.84
2 8 a.m.	6.5	3.6	2.9	0.92	0.93	1.0
10 a.m.	6.3	3.8	2.5	0.74	0.80	0.96
3 8 a.m.	7.0	4.4	2.5	0.74	0.80	0.96
10 a.m.	7.0	4.4	2.5	0.73	0.94	0.92
4 8 a.m.	6.1	3.4	2.7	0.87	0.94	0.92
10 a.m.	6.1	3.4	2.7	0.93	0.96	0.84
5 8 a.m.	5.6	3.4	2.3	0.46	0.99	0.81
10 a.m.	5.6	3.0	2.6	0.79	0.96	0.84
6 8 a.m.	7.3	4.8	2.5	0.30	9.94	1.3
10 a.m.	7.2	5.1	2.1	0.18	0.82	1.1

Comparion With Other Methods

The results obtained by this turbidity method were compared with a. Total protein as obtained by copper sulfate specific gravity methods b. Total and fractional proteins as determined by salting and biuret, Kjeldhal nitrogen; tyrosine content, and drying and weighing. In brief, it was found that total proteins as determined by specific gravity and turbidity agreed when proteins were near normal range, but not when abnormal serum proteins were present. Apparently copper sulfate method is not reliable when serum proteins are abnormal[1].

Figures agreed well with nitrogen, biuret, tyrosine and drying and weighing. Differences were, however, noted. In effect it was found that the turbidity produced by precipitation of globulins with sulfosalicylic acid is less than the turbidity produced when albumin is so precipitated. Therefore when serum albumin is low the turbidity method will accentuate this decrease and lower the albumin figures even more so. This is not a serious objection because the difference is not appreciable until the albumin is less than 2.5%. However, under such circumstances it would be well to determine the albumin by biuret, rather than by turbidity, if more accurate figures are to be obtained.

Normal Values

A series of 136 apparently normal persons, all but 26 being males, had fasting samples of blood drawn. The results of protein estimations on this group are shown in Table 4, with comparative figures from the literature.

Rereference	method	Total protein F.D.	albumin F.D.
present study	turbidity	6.9 0.8	4.6 0.8%
(75)	nitrogen	7.1 0.8	4.6 0.7
(90)	electrophoresis	7.0 0.7	4.6 0.8
(66)	"	7.0 0.5	4.1 0.4
(65	"	7.7	4.4

Reference	method	alpha F.D.	beta F.D.	gamma globulin F.D.
present study	turbidity	0.6 0.8	0.8 0.3	0.9 0.4
(75)	nitrogen	—	—	—
(90)	electrophoresis	1.1 0.4	0.75 .25	up to 1.25
(66)	"	0.95 0.2	0.94 .2	0.87 0.31
(65)	"	0.46	0.86	0.76

Other normal figures are similar (14; 15; 31; 44; 68; 81; 90; 109; 125).

Physiological Variations

Diurnal variations have been reported[83] but were not studied in this laboratory. There were insufficient females in the series to compare for sex differences. Apparently, serum proteins are the same in both sexes[108] although females tend to have more fibrinogen than males.

Seasonal variations have been reported[108], with serum albumin higher in the winter than summer, while globulin is unchanged. No trend was obvious in the examination of the figures in this laboratory.

The effect of age on the serum protein distribution has been studied [91, 48,] but the main interest has centered at the infant level. In the older age groups it is said[101] that albumin values tend to drop and the globulins tend to rise with advancing age. The normal figures in this study were divided into decades, and the mean figures in each decade are shown in table 5.

Table 5

Decade	Total Protein	Albumin	Globulin	Alpha	Beta	Gamma
21-30	7.0	4.9	2.3	0.64	0.80	0.84
31-40	6.9	4.9	2.3	0.74	0.67	0.93
41-50	7.0	4.5	2.6	0.85	0.83	0.90
51-60	7.1	4.5	2.6	0.75	0.98	0.92
61 plus	6.4	3.7	2.4	0.56	0.95	0.88

These figures suggest a trend towards lower albumin values after the age of 60. It is likely

that this drop reflects the dietary habits of older men and the increased incidence of occult disease amongst them.

Pregnancy[114] has been studied with respect to changes in serum proteins and a slight decrease in albumin with a rise in alpha, beta and gamma globulins may be seen. After delivery the proteins return to normal, reaching such levels in 5-12 weeks. In our series there were six cases studied during pregnancy, and this trend was observed.

The recumbent position produces a negative nitrogen balance[18] and a drop in total protein averaging 0.8 gm% [83]. This is said to account for the diurnal variation and is attributed to hemodilution. The changes do not persist, however, with prolonged immobilization. Actually the maximum drop occurs at about two hours after becoming recumbent, and tends to return to normal by the third day.

Serum Proteins in Disease

The serum protein fractions have not proven to be of great diagnostic value. The reason for this appears to be that a common pattern tends to evolve with many varied diseases. This pattern could be called the "stress" pattern. Changes in metabolism in stress have been reviewed[126], [127]. The serum protein changes during "stress" have been studied. [31, 60, 88, 95, 113]. This pattern is as follows:

Within the first few days of a stressing experience such as surgical operation, fracture, infection, or burn the serum albumin falls precipitously, and reaches its low point about 7-10th day[59]. Coincident with the fall in serum albumin there is a rise in serum alpha globulin. Later the fractions gradually return to normal. These changes are not due to protein or calorie starvation, as they occur even if negative nitrogen balance is prevented by parenteral feeding at this time. [37, 107, 113]. Decreased rate of synthesis has been suggested as the main cause; but the rate of fall appears to be greater than the normal rate of disappearance of albumin, so that decreased synthesis alone would not appear to account for this drop[31]. If the patient has been protein depleted before the stress occurs, the albumin does not show this drop[95]. Because of this reaction low serum albumin is not a good criterion of protein depletion in a patient [8, 40]. The restoration of serum proteins following stress might be a better criterion for protein depletion[11].

In tune with the times, the stress changes might be attributable to activation of the pituitary-adrenal axis by the stressing stimulus. Actually there is not much literature on the effect of ACTH or cortisone on the serum protein patterns of normal individuals. This is discussed below. It is also uncertain as to whether or not the drop in serum albumin that occurs in stress is beneficial or not, although chronic protein depletion is said to decrease antibody formation, and may account for persistent vomiting, proneness to shock and delayed healing of wounds and fractures [22, 95].

While the pattern tends to remain the same for all stresses its degree varies with the type of stress. Opening the abdominal cavity, for example, produces a much greater effect than does repair of an hernia.

Table 6 shows the type of stress pattern found within the turbidity method.

Table 6

Date	Total Protein	Albumin	Alpha	Beta	Gamma Globulins
1. Operation for herniated nucleus pulposus:					
Preoperative	7.4	5.4%	0.2	0.6	1.2
6 hours postop.	6.5	4.7	0.8	0.4	1.1
1st day postop.	6.6	4.6	0.4	0.3	1.3
3rd day	5.8	3.7	0.4	1.2	0.5
4th day	6.0	3.7	0.6	1.1	0.6
7th day	6.1	4.1	0.4	1.0	0.6
13th day	7.0	4.7	0.4	1.0	0.9
2. Partial gastrectomy for duodenal ulcer:					
Preoperative	6.8	4.8	0.54	0.76	0.72
Day 5 postop.	6.1	3.5	0.67	0.74	1.2
Day 7 postop.	5.8	2.6	1.40	0.80	1.0
Day 19	4.8	1.8	1.20	0.92	0.84
Day 24	4.6	2.6	0.20	0.88	0.94
Day 40	5.1	2.1	0.23	0.71	2.0
Day 60	6.0	3.3	0.21	0.84	1.6

Infectious Disease

In acute infectious diseases the general type of response seen is the "stress" pattern[33]. There is a prompt fall in serum albumin, a rise in alpha globulins during the acute phase but falling off after 8-20 days and as the alpha globulins fall the gamma globulins rise and tend to remain elevated until infection is no longer active. This pattern has been described in typhoid and paratyphoid fever[35] in scarlet fever[17] and in pneumococcic infections [64, 122].

In virus infections a similar pattern emerges. In acute anterior poliomyelitis the albumin drop parallels the severity of the infection, beginning the third day and maximum 7-10th day. Globulin rise early [7, 12].

In lymphogranuloma inguinale the same pattern occurs but there a great rise in the gamma globulin fraction may be seen[19].

The albumin drops in infectious mononucleosis and the gamma globulin rises, whereas alpha and beta fractions are variable. The heterophile antibody is mostly associated with the gamma globulin fraction[105].

Parasitic diseases also show this pattern. In syphilis the albumin drops in the primary stage and tends to remain decreased [82, 106, 128]. Alpha globulins rise in the secondary stage only, and the betas remain unchanged throughout. Gamma globulin fractions tend to remain elevated throughout all stages. Thus the infectious pattern is seen in this disease, rather in a "slow-motion"

type of picture. No difference in the pattern was seen in sera showing false positive and true positive serological reactions.

Malaria showed the same general pattern[16, 103], the degree of change paralleling the severity of the disease. In trichinosis[123] gamma globulin rises in the 2-3rd week and persist up to the 8th week of the disease.

Tuberculosis tends to show a slight rise in the gamma globulin fraction early, later an increase in alpha 2 globulins have been reported associated with a rise in the serum polysaccharide content. Only when the disease is advanced does the albumin fraction drop greatly, or do the gamma globulins rise very high[102]. Leprosy shows much the same type of change[96].

The experience from this laboratory was much the same as in these reports.

A series of cases of influenza, proven serologically, was studied. These did not show any marked change in serum protein, except a mild decrease in serum albumin. Twelve cases of infectious mononucleosis showed a drop in serum albumin during the course of their disease, generally to a low point of 3.5-4.1% and a rise in gamma globulin not above the 1.5-2.0% range followed. Thirty cases of malaria were included in the study. Most of these had been on suppressive therapy and were seen at hospital within a few days of the onset of chills, after returning to this country and discontinuing their medication. In most cases there was little change seen in the serum protein except for a moderate elevation of the serum gamma globulin fraction.

Fifty-one cases of tuberculosis were studied, through the kind co-operation of the staff of the King Edward Hospital, Winnipeg. In 37 cases the gamma globulin values were definitely abnormal; in 14 they were within normal range, but mainly in the upper normal bracket. Most of the gamma globulins were in the 2% range and none was over 3%. Albumin values appeared to vary inversely with the extent of the disease, in most cases within normal limits, but in advanced cases low values were found. The lowest values were seen in one case complicated by amyloid disease, and this case also had high beta globulins (table 7).

Table 7

Date	Total Protein	Albumin	Alpha	Beta	Gamma Globulins
5.5.52	5.5	1.4	....	1.2	2.9
Ascitic Fluid	1.7	0.4	0.1	0.6	0.5
5.6.52	5.6	1.4	....	1.6	2.6

Over a two-month period no drastic change was seen in any of these cases that were treated with niazid.

It would seem, therefore, that in infectious diseases the "stress" pattern is modified in that the gamma globulin fraction tends to rise later in the course of the disease and tends to remain elevated where persistent infection occurs. The degree of elevation of this fraction may be of some differential value, but in the main, the value of serum protein determinations in infectious disease would be more to indicate the course of the disease than in its diagnosis.

Liver Diseases

As the liver appears to be responsible for the manufacture of almost all of the serum albumin and fibrinogen, and for perhaps 80% of the normal serum gamma globulin [72, 76, 78] much study has centered on serum protein changes in liver disease.

In **acute hepatitis** elevation of serum gamma globulin has been reported to be the earliest change [103] while others [90, 120] find initially, a rise in beta and a drop in alphaglobulins followed by a rise in gamma globulin fraction. These changes in both acute and chronic liver disease, may not produce an abnormal albumin/globulin ratio even though the serum globulins show an abnormal distribution[30] and illustrate the comparative inefficiency of this ratio as a guide to abnormality of the serum proteins. There does not appear to be any merit in the use of this ratio[92]. Albumin values tend to drop in acute hepatitis[51].

In liver cirrhosis the albumin values drop and the beta globulins tend to rise but the outstanding feature here is a rise in the gamma globulin fraction [23, 24, 71, 100, 104, 112]. It has been claimed that those cases showing elevation of the alpha fraction early in the disease tend to run a more severe course and to develop chronic hepatitis [103]. Albumin values usually drop moderately, and are lower in the presence of ascites[43] where the gamma globulins tend to be higher than otherwise. Increased fibrinogen was reported to occur in cirrhosis as determined by electrophoresis, but this is now said to be a false elevation due to the inclusion of some gamma globulin in the fibrinogen fraction and giving rise to the anomalous situation where serum gamma globulin is higher than plasma gamma globulin[23]. This also illustrates that electrophoresis is not the absolute affair that some would believe.

Agreement is almost universal on the changes that occur in liver disease. However, it should be noted that "latent" or asymptomatic cases may have near normal values in their serum proteins[94].

In **biliary cirrhosis and obstructive jaundice** the changes that occur are similar to those in cirrhosis [90, 92]. In all hepatobiliary disease, therefore, albumin tends to decrease, beta globulins tend to rise in hepatobiliary disease, whereas gamma globulins tend to rise in hepatitis and cirrhosis.

The experience in this hospital has been in accord. Table 8 shows illustrative cases.

Table 8

1. Nurse with acute infectious hepatitis:

Week of Disease	Albumin	Alpha	Beta	Gamma Globulins (gms %)
1	5.4	0.34	0.56	1.3
3	4.5	0.44	0.56	2.1
4	3.1	0.90	0.70	1.4
5	5.7	0.80	0.80	1.8
6	4.8	0.67	0.74	1.2
9	4.4	0.19	1.1	1.2

This case ran a comparatively mild course with prompt clinical recovery.

2. Nurse, acute infectious hepatitis with more prolonged course:

Week of Disease	Albumin	Alpha	Beta	Gamma Globulins (gms %)
1	3.5	0.60	0.140	2.3
2	4.3	0.72	0.67	1.7
3	4.9	0.60	0.30	2.3
4	4.5	0.22	1.1	1.5
9	4.3	0.34	0.77	1.6
16	5.1	0.14	0.27	2.3
32	4.3	1.3	0.40	1.9
36	5.1	0.11	0.60	1.6
40	4.1	0.20	0.60	1.6
48	5.1	0.20	1.0	1.1
66	5.0	0.60	1.0	1.0

3. Female, 36. Relapse in infectious hepatitis with death in acute yellow atrophy:

Week of Disease	Albumin	Alpha	Beta	Gamma Globulins (gms %)
15.3	3.9	.....	.....	4.2
17.3	4.0	.....	.....	4.9
20.3	(deceased)			

In cases with markedly abnormal globulins, by the turbidity method it is sometimes not possible to separate the fractions, and gamma globulin fraction reads as high as the total globulin.

4. Female, 24. Developed infectious hepatitis three weeks after known contact. Persistent liver damage over years. Onset of jaundice 28.2.51:

Week of Disease	Albumin	Alpha	Beta	Gamma Globulins (gms %)
4.4.5	3.8	.....	.....	4.7
30.4.51	2.5	.....	.....	6.6
17.5.51	4.2	1.7	.....	3.1
29.5.51	3.3	0.18	.....	5.0
26.7.51	3.2	.....	..	5.3
25.4.52	4.6	.....	.40	4.1
16.1.53	3.1	.....	.50	4.2

One case of methy testosterone hepatitis, explored surgically, showed moderate decrease in albumin and elevation of beta globulin with no change in gamma globulin. One case of chemical hepatitis from turpentine ingestion showed little change in serum protein fractions apart from decrease in serum albumin.

The cases of hepatic cirrhosis studied showed elevation of gamma globulin of varying degree, tending to be high in those cases deemed to be postinfectious cirrhosis and less so in nutritional cirrhosis. Albumin fractions were near normal unless ascites or advanced cirrhosis was present.

Cholangiolitic cirrhosis and biliary cirrhosis was found in four cases. The pattern here was much as in infectious hepatitis except that the beta globulins tended to remain more consistently elevated.

Fatty metamorphosis of the liver tended to show serum albumins of low normal range or moderately decreased with normal globulin fractions.

In obstructive jaundice moderate decrease in serum albumin was found. Gamma globulins remained normal unless some evidence of infection was present when moderate increase appeared. Beta globulin fractions showed a tendency towards elevation.

In liver disease, therefore, the "stress" pattern is somewhat modified in that infectious hepatitis and cirrhosis tend to show a more marked rise in gamma globulins, whereas obstructive jaundice tends to show a rise in beta globulins. These changes are not marked enough or consistent enough to be directly diagnostic. However they can contribute to the differential diagnosis and are of some value in following the course of the disease.

Part 2 will be published in the November issue of the Review.

Surgery

Reduction of Intussusception in Infancy and Childhood by Hydrostatic Pressure*

Arthur E. Childe, M.D.

Intussusception is a relatively common condition in infancy and childhood and it constitutes one of the most important abdominal emergencies at this age. The patient is usually well nourished and healthy. Males are more frequently affected than females and most series show that more than one-half of the cases occur before the first birthday. Generally there is no apparent causative mechanism, although in about five per cent of cases the process is initiated by a Meckel's diverticulum, a polyp or a much rarer condition such as duplication of the colon or lymphoma. Some authors feel that the change from milk to a more solid diet may alter intestinal peristalsis in such a manner that it initiates intussusception. There is a somewhat higher incidence in the summer months. (Table 1).

Characteristically the initial symptoms appear suddenly producing violent pain and screaming. This scream has an anguished, ominous character. The legs are drawn up on the abdomen and there is usually vomiting with the first attack of pain. The child becomes pale, its eyes vacant, its expression suffering and its muscles relaxed due to peritoneal shock. The initial attack is short but the pain recurs intermittently at longer or shorter intervals, although these attacks tend to be milder than the first. Between the attacks the patient appears apathetic and lethargic. There may be early diarrhea but later mucus and blood are passed. However, in about one-third of the cases no blood appears before twelve hours after the first symptom. Generally an abdominal mass can be palpated, although sometimes it is necessary to administer a general anaesthetic before it can be identified.

Roentgen ray methods offer a very accurate means of diagnosis of intussusception. Plain films taken with the patient in the upright and horizontal positions may reveal typical findings but it should be remembered that negative findings in such films do not necessarily exclude intussusception. However, the barium enema when carried out properly is most reliable and except for the occasional instance where the lesion commences high in the small bowel the percentage of error with this type of examination should be negligible. Nearly always by the time the patient comes under observation the head of the intussusception has reached the large bowel. If there is a long redundant sigmoid, a small knuckle in the region of the ileocecal valve may be difficult to see and it may be reduced by the enema without the diagnosis being made but this is not an important mistake, except statistically. Characteristically the defect, which was first described by Ladd in 1913, produced by an intussusception is encountered somewhere in the colon and its apex is concave orally. As filling of the colon is continued some barium usually passes between the two outer layers.

Although most cases of intussusception have a characteristic, abrupt onset, all who have had experience with this condition realize that there are exceptions to this rule. Early diagnosis is of paramount importance and consequently it is wise to suspect this possibility even though the history and findings may not be classical. The administration of barium enemas in such cases is highly desirable, for although many are negative, a substantial percentage are positive.

The method of choice in the treatment of intussusception is a much more controversial matter. Hutchinson in 1874 was the first to successfully perform the operative reduction of this condition and since that time many authors have advocated surgical reduction in all cases.. The mortality following surgery has gradually fallen, partly due to earlier diagnosis, and partly due to better preoperative, operative and postoperative technique, so that now it is very low even in late cases.

Various authors, notably Scandinavian and Australian, have advocated conservative methods of reduction. Air or water enemas were originally used but these have been abandoned. In 1927 four cases successfully reduced by barium enemas were reported and the literature dealing with this method of reduction has now become quite voluminous. By and large we, in North America, have been slow to adopt this form of therapy and it is still opposed by many prominent figures in the United States and Canada. They reason that an intussusception may not be reduced completely, particularly the ileal component, and that the cause, if any, is not visualized and consequently not corrected. They also say that operation is delayed in those cases which are not reduced and that the child has been subjected to a procedure which depletes its narrow margin of reserve.

These objections are not considered valid by the proponents of the barium enema method of reduction. The delay resulting from the administration of the enema is considered negligible provided the operating room and surgeon are alerted to be in readiness in case operation is required. They also claim that reduction is certain if the colon and small bowel are properly filled. Ravitch

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and McCune of Johns Hopkins in 1950[1] claimed that they were able to reduce 69% by barium enemas alone. Kahle of New Orleans in 1951[2] stated that the barium enema method of reduction should no longer be ignored. The most complete and detailed description of the conservative method of reduction that I have encountered is the monograph by Hans Hellmer of Lund, Sweden, published in 1948[3]. He reported successful reduction of 130 out of 162 cases (80.2%) from 1933 to 1947, with no mortality in any of the cases so reduced. In spite of complete reduction there was a recurrence rate in this series of 16.5%, over a third of which took place within four days, presupposing a repetition of the original course of events. These recurrences were successfully reduced by the same method.

Our technique and criteria of reduction have been very similar to Hellmer's, although so far we have been somewhat more cautious than he in the pressures used and the number of attempts. Following consultation with the staff of the Children's Hospital of Winnipeg, it was agreed that every patient suspected of having an intussusception should be examined by barium enema and that if such a lesion were found an attempt should be made to reduce it immediately. This practice has been followed for the last four years. The radiologist is notified, often before the patient reaches the hospital, and to save time the patient is taken to the X-ray department before admission to the ward.

The procedure is greatly simplified by the use of a Bardex tube. Even in quite small infants it is nearly always wise to use one of medium size (No. 26) rather than an infantile one (No. 18) and in most cases forty to forty-five cc. of air are introduced into the balloon. The radiologist can usually keep the legs extended with a gloved right hand, thus preventing expulsion of the tube, although in older, stronger children he may require an assistant. Another assistant holds the hands and chest and the X-ray technician attends to the enema can. Initially this is raised only about two feet above the table top, but when the intussusception has been encountered it can be raised to a maximum height of 4½ or 5 feet above the patient. Anaesthesia or sedation is never administered. The barium mixture must be warmed to blood temperature and it should not be unduly thick. Suspension of the can by a pulley attached to the ceiling above the table and a rope running through this and fastened to a catch on the nearby wall simplifies raising and lowering to the proper height.

Usually the defect produced by an intussusception is found somewhere in the right half of the colon and generally it can be made to pass easily in an oral direction. Reduction tends to progress spasmodically and not infrequently it is possible to fill the cecum and appendix well before the residual defect in the colon disappears. With the continued application of hydrostatic pressure such a defect may suddenly disappear but if it persists the application of manual pressure may be advisable. If this too is ineffective it is wise to permit evacuation, dry off the patient and wait a few minutes. In spite of incomplete reduction the patient will often seem markedly improved and fall asleep. Following a short rest period another enema can be administered and even a third enema after another short rest is sometimes advisable. No more than three enemas should be carried out. Naturally more vigorous attempts at reduction are carried out when the history is short and the patient in good condition than when the duration is of several days and the patient is in poor condition.

If the head of the intussusception is found in the colon and it cannot be moved appreciably even by relatively high pressure, the enema is abandoned and surgery is instituted. If the colonic component is reduced but the apex persists in the small bowel it is likely that the intussusception has arisen reasonably high in the small bowel, too high for successful reduction by the enema. Under these circumstances also, the patient is referred for immediate surgery. Only when the entire colon has been filled and the small bowel flooded for a considerable distance is reduction considered complete. Even then a post evacuation film should always be made and studied before the patient is dismissed. It is our custom to admit the patient to hospital for at least 24 hours for further observation before discharge. Usually this period is entirely uneventful, recovery being immediate and complete.

Attempts at reduction should not be unduly prolonged, particularly in cases where the history points to an intussusception of considerable duration. The argument that a Meckel's diverticulum may be responsible for the intussusception and that it may be missed if reduction is attempted by barium enema is invalid. If such an anomaly is responsible the intussusception will have originated some distance from the ileocecal value and attempts to reduce it will have been abandoned long before this length of ileum has been filled. The study of post evacuation films should prevent failure to recognize the presence of a polyp which may be responsible for the development of an intussusception.

Statistics show that most intussusceptions start in the small intestine—Hellmer found that 91 out of 100 did in his series—but fortunately their origin is usually near the ileo-cecal valve. During the course of reduction it is generally possible to determine the exact type of intussusception with

which one is dealing. When the colon is filled as far as the tip of the cecum a filling defect originating at the ileo-cecal valve usually remains for a period time. This is due to the small bowel invaginated into the colon and at this stage there must be either an ileo-colic or an ileo-ileo-colic intussusception. The filling defect may be quite small and localized to the ileo-cecal valve and often it can be seen only when the patient is rotated, when pressure is applied to this region or when evacuation is permitted. Sometimes while the defect still remains some of the barium passes through the valve and spreads out into a thin layer between the outer and middle coats of the intussusception. This is the picture of an intussusception in the ileo-ileo-colic stage. After the large intestinal component has been reduced it may be possible to see the intussusception remaining in the distal ileum in an ileo-ileal stage. Unless this defect disappears soon and the ileum is flooded with barium, conservative therapy should be abandoned and the patient handed over to the surgeon.

More commonly a small defect originating from the region of the ileo-cecal valve, under the influence of high hydrostatic pressure, and perhaps manual help, suddenly disappears and the ileum rapidly fills for a considerable distance so that the ileo-ileo-colic or ileo-ileal stages are not recorded.

Intussusceptions which start in the colon are much less common than those starting in the small bowel and may be missed entirely, particularly if high pressure is used, as they are often short and reduction takes place rapidly. Some of them may be reduced by water enemas given before the patient reaches hospital. Occasionally an intussusception will commence in the cecum.

It is much more difficult to assess the degree of involvement of the colon in an intussusception starting in the small bowel. Sometimes the intussusception becomes quite long without the large intestine being invaginated into it at all as shown by filling the cecrum with the apex still at the hepatic flexure or even further distally. However the intussuscipiens may become shorter by being pushed together like a concertina, so that large portions of the colon are involved without the intussusceptum increasing in length. The mesentery and mesocolon, according to Hellmer, exert a great influence on the mechanism and anatomy of an intussusception. The mesentery comes to lie between the outer and middle layers of a three layered intussusception originating in small bowel and the traction resulting from this exerts a braking effect on its descent. Under these circumstances the mesentery also tends to draw the colon toward the centre of the abdomen.

The results of the barium enema method of reduction are influenced by several factors. If the lesion originates some distance oral to the ileo-ceceal valve surgery is almost always necessary, but fortunately such cases are in the minority. Early diagnosis is of the greatest importance, although reduction is sometimes successfully accomplished several days after the onset of symptoms. Reduction is also said to be somewhat more difficult in infants under the age of one year. Severe small bowel distension does not contraindicate attempts at reduction by barium enema. Probably the most important factor is the method used.

In Winnipeg we have purposely progressed conservatively so that the method would not fall into disrepute. Over a four-year period there were 52 cases of acute intussusception admitted to the Children's Hospital (Table II). During the first 2½ years only 34% were salvaged from surgical interference (Table III) but in the subsequent 1½ years the percentage rose to 53% or more probably 58% (Table IV). It is quite probable that the percentage is actually higher than either of these figures for there were a number of patients with symptoms characteristic of intussusception, who would have been subjected to laparotomy on clinical grounds had no enema been carried out. In all of these we were able to fill the entire colon and a good deal of the ileum without seeing a defect diagnostic of intussusception, but it is more than probable that rapid reduction occurred without us being aware of it, in some of them, at least. One infant was admitted twice within a month with a highly suspicious history and clinical findings. He had a remarkably redundant sigmoid which made it almost impossible to see the region of the ileo-cecal valve. Although the small bowel was flooded on both occasions without much difficulty, a defect near the ileo-cecal valve may well have been obscured by the sigmoid. Following each enema the infant recovered promptly and was allowed to go home the following day.

Summary

Reduction of intussusception by the barium enema method is a perfectly safe and reliable procedure.

Attempts at reduction should not be too vigorous or prolonged particularly when the intussusception is of considerable duration.

Reduction must never be considered complete until the entire colon has been filled and the ileum flooded. Post evacuation examination is essential for final confirmation.

The author wishes to thank Drs. G. F. Boult, W. J. Elliott and M. K. Kiernan for the time and effort they have spent in the diagnosis and reduction of many of these cases.

Table I

Seasonal incidence of intussusception in 79 cases admitted to the Children's Hospital of Winnipeg, 1948 to 1952:

January	4
February	3
March	7
April	8
May	6
June	10
July	13
August	8
September	7
October	2
November	6
December	5

Table II

Intussusceptions admitted to Children's Hospital of Winnipeg, January 1, 1949 to December 31, 1952:

Total patients	50
Total intussusceptions	52
Male	27
Female	23
0 to 6 months	24
7 to 12 months	14
13 to 24 months	5
Over 24 months	9
Youngest	1 month
Eldest	4½ years

Table III

Results of barium enema method of reduction, January 1, 1949 to June 30, 1951:

Reduced	12
Not reduced	22
Probably reduced but operation carried out for confirmation so counted as a failure	1
Percentage reduced by barium enema	34%

Table IV

Results of barium enema method of reduction, July 1, 1951 to December 31, 1952:

Reduced	9
Not reduced	8
Not seen but probably present and reduced	2
Percentage known reduced by enema	53%
Percentage probably reduced by enema	58%

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Modern Burn Therapy

Major A. M. Davidson, R.C.A.M.C.

Officer Commanding, 25 Canadian Field Surgical Team, Korea

The undiminishing threat of a third World War, with the possible use of the atomic bomb and other incendiary weapons, underline the ever increasing importance of adequate burn therapy.

The war in Korea has resulted in some excellent articles on this subject, as the result of experience gained in treating burn casualties. This brief synopsis, dealing only with a small proportion of these cases, is intended to outline some of the methods used and lessons learned by the author while serving in the Korean Theatre.

Part of the time while in Korea the author's unit, the 25th Canadian Field Surgical Team, was attached to the American 8055 Mobile Army Surgical Hospital (MASH). This advanced surgical centre was responsible for treating casualties from the British Commonwealth Division and two other divisions of a U.S. Corps, as well as Korean Troops in the area. An opportunity was also taken to follow up some of these cases in the British Commonwealth General Hospital in Japan to which hospital all Commonwealth cases were eventually evacuated.

During the winter months the problem of burns in this war has been a very formidable one and has been responsible for a great number of man days lost from various units. The cost involved in treating these casualties, evacuating, retraining and if possible returning them to their respective units, has been considerable.

By far the greatest proportion of these burns resulted from the gasoline stoves employed to heat the bunkers and tents which serve as living accommodation. For both the forward and line of communication troops these stoves were the main means of keeping warm.

Evacuation

The severe front line burn case besides requiring treatment also requires evacuation. This is a staged process which in the current situation means moving the man hundreds of miles through a number of medical installations. Assuming that the man is burnt in a forward infantry company, he is first seen by his regimental medical officer. The case is evaluated and emergency treatment is initiated. Necessary plasma and morphine are given, and a sterile compression dressing is applied. The man receives 300,000 units of procaine penicillin and also ½ c.c. of tetanus toxoid to augment his previous immunization.

If the burns are severe and the casualty is in need of immediate treatment, a helicopter is employed to fly him to the MASH. If his general condition presents no cause for alarm he is transported by ambulance. This trip may be a distance up to twenty miles— a long and arduous journey over the bumpy and dusty Korean roads.

Following the initial debridement and control of shock the patient is transferred to an Evacuation Hospital. If the severity of the case demands rapid transport a helicopter may again be employed. If necessary, plasma infusions can be administered while airborne. These flights are relatively easy on even the most severely wounded men, as the helicopters are able to make the trip in about twenty minutes. They can fly at the very low altitudes of three to five hundred feet along the valleys. This rapid air evacuation of critically burnt casualties has saved a number of lives in the Korean campaign.

The majority of burned patients are routinely transported from the MASH by special trains. Minor burns, which include the less extensive second degree burns not requiring skin grafting, are held at the Canadian Field Dressing Station. Depending again on the patient's condition, he may remain at the Evacuation Hospital for a few hours or days before being loaded into an ambulance aircraft to be transported to one of the various base hospitals in Japan. All casualties from the British Commonwealth Division are flown to the large air base at Iwakuni, from whence they have a two hour ride either by ferry or hospital train to the British Commonwealth General Hospital in Kure.

Initial Treatment

This, in the more severe case, is given at the MASH after he has already received the first aid therapy referred to above. If his general condition permits, the dressings are removed and the area cleaned with an antiseptic soap such as phisoderm or cetavalon. Because of the creamy consistency of the former it was found to be ideal for the purpose. By gentle application with the gloved hand or gauze wipes, the blisters and peeling skin can be removed with the aid of scissors and tissue forceps. After such debridement of blisters and necrotic skin, pressure dressing are applied. Notes are made on the extent, location and probable depth of the burn, although at this stage it is often difficult to judge accurately the depth of the skin loss.

The Berkow's Rule of Nine is useful in computing the involved area and thus establishing the fluid replacement which will probably be required. This, however, has to be varied with different clinical signs which the patient may subsequently present. For each one per cent of body area severely burned 100 c.c. of fluid should be given or approximately 1 litre for every 9%. For example, considering the entire surface of one leg as roughly 18% of the total body surface area, and similarly that of one upper extremity as 9%, an adult patient with the entire surface of both legs and half of one arm burned, has about 40% of his body area burned. He will therefore require in the neighbourhood of 4,000 c.c. fluid in the first twenty-four hours. Up to a third of this may be given in the form of glucose, saline and sodium lactate solutions. The remainder should be plasma, whole blood or one of the plasma expanders such as dextran. The estimated requirement is routinely confirmed by hematocrit and haemoglobin evaluations on admission, and the need regulated by comparing these basic readings with subsequent evaluations.

An even simpler method of deciding the fluid requirements is based on the body weight and surface area burned. The hematocrit readings need not be calculated. According to this formula the patient requires 1 c.c. of colloid solution per kilogram body weight for each per cent of body burn. Electrolytes are given in the same quantity and, in addition, 2000 to 3000 c.c. of water free from electrolyte is given to compensate for insensible water loss. This total is given within the first 24 hours. The one exception to this formula is that for burns greater than 50% no more fluid is given than if 50% of body surface is involved.

Laboratory facilities at the MASH are inadequate for rapid detailed estimations of electrolyte balance. If these studies are urgently needed it means sending the blood specimen back to Seoul. Therefore in the average case, clinical acumen must be used to judge the probable sodium, potassium and chloride level as well as kidney function. A very accurate recording is made, in all cases, of the fluid intake and out-put. This, along with a daily complete urinalysis, has been invaluable in assessing the patient's renal function, as well as being a guide to therapy.

The rate of urine excretion is of supreme importance in appraising the adequacy of fluid therapy. An hourly out-put of 30 to 60 c.c. is considered satisfactory. If it falls below 30 c.c. the rate of administration should be increased. Conversely if it rises above 100 c.c. per hour, fluids should be curtailed. In severe burn cases indwelling catheter drainage is instituted immediately so that this excretion may be carefully observed.

As will be discussed later the exposure method of treating burns has been used extensively in Japan. This was not possible in Korea in the forward area because of the dust and dirt, but was used with good results further back. Anyhow it

is impractical if the patient requires evacuation. Intranasal oxygen is used for cases where obvious signs of pulmonary oedema exist. One unfortunate individual, burned by napalm bomb "booby trap" explosion, required an emergency tracheotomy because of obstruction of the airway following acute pharyngeal and laryngeal oedema.

Definitive Treatment

During the months October, 1951 to May, 1952, 166 burn cases were admitted to the British Commonwealth General Hospital in Kure, Japan. As the author returned to this base hospital from the field on 31 March, 1952, he has chosen to discuss some of the principles employed in handling these cases at this institution. Most of the burns covered a considerable body surface, forty and fifty per cent, so that 23 major skin grafting operations were necessary during this two month period.

The patient's condition is assessed upon his arrival. From the appearance of the dressing and from notes that have been made at different medical installations during the evacuation, a decision is reached as to the method of treatment to be followed. If the patient is having a lot of pain, or if his temperature is elevated, immediate change of dressings is made. In addition, if bandages are soiled or have an offensive odor, early removal is considered desirable. If none of these signs are presented which make removal of the dressings imperative, the decision is made either to treat the burn by the exposure method or to keep the area covered. The majority of the burns treated at this centre prior to grafting procedures are treated by the exposure method, which will be discussed later.

Closed Method

If it is decided to follow the closed method, the patient's dressings are left for six to ten days. By this time a high proportion of the second degree of partial skin loss burns are found to have healed. Also at this stage it is possible to judge the depth of a burn, which cannot be done accurately earlier. If the dressing is adherent no further attempt is made at removal, but the area is redressed for a further five to ten days, by which time the necrotic area will be outlined. If the slough can be removed easily it is immediately lifted off, sometimes in large sheets. Usually this is done about the 16th day following the burn and generally under anaesthesia. The area, if healthy and free from sepsis, is immediately grafted. Unfortunately quite a number of these cases arrived back from Korea infected. This is quite understandable when one stops to consider the conditions under which they are burned, and how difficult it is to maintain strict aseptic technique under field conditions at the time of initial surgery.

Exposure Method

When, as in the majority of cases, the exposure method is selected, all dressings are removed and the part left exposed to air. However, generally speaking the exposure method is not as adaptable to this type of burn. Until an eschar develops, the affected limb is stretched out on a sterile towel. By the end of 48 hours the surface is usually covered with a very thin crusty film which gradually becomes thicker. Up until this time with a large burn a considerable serous exudate often is observed. In burns which are treated for a few days by vaseline gauze and compression dressings this two day period of exposure to the air is also generally necessary before the eschar develops. A cradle is used to prevent the bed clothes from touching the burned surface. For the extensive circumferential burns of the trunk it is usually found necessary to cover the under surface with vaseline gauze dressings for at least a few days to minimize friction. When an eschar forms on the opposite surface the individual is turned, and, if desired, the dressings which are then on the upper surface are removed.

In several cases of severe burns the Stryker frame has been used and its employment in this type of casualty is highly recommended. Because the nursing of the patient is greatly simplified it means that he can be turned over frequently with minimal discomfort. In addition it is an excellent way of preventing pressure sores in the debilitated patient, both in areas where normal skin remains and in weight bearing areas where skin has been lost. It is greatly appreciated by the nursing staff and patient alike in cases where compresses have to be applied to anterior and posterior surfaces of the body, two or three times a day. This type of patient also benefits by being easily wheeled outside to spend several hours each day in the fresh air and sunshine. Especially in Korea where flies and mosquitoes tend to be troublesome, patients being treated by the exposure method are allowed in suitable weather to lie in the sun with the issue mosquito netting on a frame work over their canvas cots. This tends to accelerate the formation of an eschar.

The exposure method is a great saving on sterile dressings. These, at a time of sudden influx of burn casualties from a disaster of any magnitude, might soon become in short supply. It is an ideal method if the burn has caused only partial skin loss. Especially is this true for the face. However a gross purulent exudate often develops under the thick eschar of the third degree burn. This may have no avenue of escape and therefore go undetected. Usually however this type of patient senses "something underneath" so that eschar can be removed. When this is done, pus issues forth which has developed in the rich

pabulum provided by the raw surface below. It is impossible in many cases to tell what lies beneath the eschar as frequently there is no sign of pus. The patient's general condition may be excellent so that a healthy granulating surface ready to receive a graft is anticipated. Instead, when a section is removed pus may issue forth. In most of these cases grafting has to be delayed and the part treated with eusol compresses for a few days. Nevertheless in some cases split thickness grafts have been applied under such conditions, and have taken remarkably well.

Even in what may appear to be a relatively minor second degree burn, great care must be maintained to preserve aseptic technique. This is especially true in burns of the wrist, hands, face and neck. If these areas become infected a second degree or partial skin loss burn may develop into a full thickness one due to the destructive enzymic action of the bacteria. This subsequently leads to increased fibrosis, scarification and contractures. Besides the danger of disfigurement and an inferior functional result, the potential danger of skin malignancy in later life must be borne in mind. This development is the result of constant irritation from cracks in the skin.

Burns of the Hand

It is felt neither the closed nor the open method is suitable as a routine measure for treatment of second and third degree burns of the hand. The marked limitation of movement which results from either of these methods is apt to lead to shortening of the tendons and stiffness of the joints. Instead, the course to be followed in each case depends on the different features of the burn. In full thickness skin loss the drying effect will cause severe and irreparable damage to tendons, joint structures and remaining skin. To obviate these crippling deformities of the hands and feet, complete immersion in either normal saline or half strength eusol may be employed. The open hand bath can be used but in this hospital the Bunyan-Stannard bags are considered preferable by both the patient and surgical staff. By this means the affected area may be irrigated with the desired solution several times a day. Between irrigations the bags are blown up with oxygen to prevent the material from sticking to the raw surface. As the bags are transparent, the surface can be kept under constant observation. The regular movements of all joints is encouraged, and this is supervised by the physiotherapy department. This greatly reduces the chance of permanent disability from ankylosis of the affected joints which would otherwise be completely immobilized by the hard eschar.

The policy followed in respect to some of the hand burns, where they appeared to be free from sepsis, was to wash the area further with copious amounts of sterile water and surgical soap. The blisters are then debrided and sterile dressings applied over a layer of petrolatum gauze. Firm even pressure is obtained by use of generous amounts of absorbent cotton under the elastocrepe bandage. It is especially important to put a lot of padding between the digits. If possible in all hand dressings the tips of the fingers are left exposed so that adequate circulation can be assured by inspection. In some cases the results are very gratifying for when the dressings are removed 10 to 14 days later the area is found to be entirely healed.

As pointed out, in those cases where sepsis is evident this method is not used but rather hand baths are preferred. It was very obvious in a number of cases that even a low grade superficial sepsis greatly prolonged the period of wound healing.

A word of warning! Even though this method may seem relatively simple it requires vigilant attention. The doctor handling these cases must be familiar with treatment of burns. It must be remembered that surfaces of full thickness skin loss must be grafted and are not to be left indefinitely in the hope that healthy skin will develop under the eschar. It will not.

Regardless of which of the above courses is to be taken it is imperative that early skin coverage be obtained. Certainly this should be at least started before the end of the third week. In the majority of cases, especially with the hand, excision of the burned area and surrounding scar tissue is the best plan if the lesion is not healed in three weeks. This is important for two reasons: (a) it reduces the chance of sepsis with its sequelae of fibrosis and contracture, and (b) without this coverage the general condition of the patient will suffer markedly due to the loss of body protein and absorption of toxic products through the granulating surface.

Skin Grafting

Before skin grafting is undertaken a relatively healthy surface is hoped for but not always obtained. Emphasis is placed on the patient's general condition from the start, especially in respect to nutrition. The patients are routinely placed on a high protein, high caloric diet, rich in vitamins. If the blood proteins are found to be low this is corrected by means of oral intravenous protein alimentation. Whole blood is extensively used because of its ready availability and because in many cases correction of the haemoglobin level is necessary. In patients with large suppurating surfaces fresh citrated blood is preferred because of the higher antibody litre than in that stored for several days or weeks.

On admission to hospital every aseptic precaution is taken but sometimes the burn is found to be already grossly infected. On removal of the

dressings, cultures are taken to identify the organisms present. In addition, routine sensitivity tests are carried out for penicillin, streptomycin, aureomycin and chloromycetin. Since penicillin is given routinely as a prophylactic measure in the initial treatment of all except the minor burns, resistance to this drug was the most commonly observed. Also, it has been noted that during a matter of two or three weeks following admission different organisms may appear in the wound, as well as variations in drug resistance.

As it is generally considered contrary to surgical principles to graft a granulating surface when gross sepsis exists, saline or eusol compresses are used in these cases for a few days. Depending on the results of the sensitivity test, the appropriate antibiotic is then administered. The granulating surfaces are inspected daily when changing compresses so that closure can be started at the earliest possible time. If the burned area is not too extensive the involved tissue can be excised en bloc down to deep fascia if necessary. At this level a healthy vascular bed can generally be found, and rapid complete healing follows. If, however, as was the case in the majority of the casualties requiring grafting, the area was very extensive, then coverage by means of split thickness skin grafts applied in postage fashion is carried out. These grafts are obtained from areas of the body not involved, by using either the Padgett dermatome, or Humby or Blair Knives. With these instruments large areas of skin of uniform thickness can be quickly obtained.

If an extensive burned area is to be excised a tourniquet is frequently used while dissecting the area. After releasing the pressure bleeders are tied with a minimum number of five zero plain cat-gut ligatures. Oozing can usually be controlled with hot moist packs applied firmly for a few minutes. As a rule areas that cannot be covered by skin from two or three drums of a Padgett dermatome, i.e. approximately one hundred square inches, are treated by postage grafts rather than by excision.

The excision method is often preferred because of superior cosmetical and functional results. This procedure is especially desirable over flexor surfaces such as the elbows, knees and wrist joints, as well as in the neck and axillae. The relaxing effect of excision observed during this procedure is very obvious, even in cases two or three weeks after a burn. Only by cutting out such areas of fibrosis, deep to the granulating surface, will disabling contractures be avoided. This has been repeatedly demonstrated in cases treated at the British Commonwealth General Hospital as well as elsewhere. Marked contractures of the knee followed in four of the patients of this series in spite of early grafting and physiotherapy. These were so severe that it was obvious that the individual would be unable to walk. In these cases complete excision of granulation and scar tissue in the popliteal region down to the level of the deep fascia immediately provided marked relaxation so that compete flexion and extension was possible. In three to six weeks these men were all able to walk, a great boost to their morale. In such cases the lines of longitudinal excision, especially in the region of a joint, are purposely made irregular to minimize the potential danger of keloid formation and subsequent contracture. If possible, in the area of a joint the line of excision should be extended transversely or at least obliquely for this reason.

Those burns which by necessity had to be treated by postage grafts often required, because of their magnitude, to be done in from two to five operations, a week or so apart. In several of our cases some donor sites had to be used again after two or three weeks because there was no other place from which to obtain skin. By this time the donor site was usually healed and permitted this being done. If the area was not too extensive and relatively clear, and if plenty of donor skin was available, large postage grafts of ten to fifteen square inches were used because they produced less scarification. On the other hand, if these conditions were not present and especially if sepsis was evident, then the small postage stamp grafts were applied.

In the humidity of Japan during the warm weather ordinary vaseline gauze preparations are found to cause too much maceration and thus encourage bacterial growth. Instead we use tulle gras netting soaked in liquid petrolatum. This is easily prepared in the operating room, and is found to be much superior. Even firm pressure is maintained over the grafts by use of consecutive layers of gauze, absorbent cotton and an elasto-crepe bandage. Adequate mechanics' waste which makes an excellent pressure dressing has not been readily available.

Because of the heat, humidity, and relatively high rate of sepsis it has been found necessary to remove these dressings much earlier than is the practice in most places in Canada. The average dressing is removed after six to eight days, but sometimes when dressings were obviously soaked in a purulent discharge removal was necessary as early as the fourth day.

The percentage of takes of these grafts is very gratifying. Even in a few cases where a severe purulent discharge is present, a large proportion of the grafts survive. Burn surfaces showing evidence of sepsis after grafting are treated with half strength eusol compresses, or sometimes with saline. Those due to Pseudomonas aeruginosa are treated with five per cent acetic acid compresses.

Even in cases where a heavy purulent discharge is present a dramatic improvement invariably occurs forty-eight hours after initiating such treatment. One such case had very severe pyocyaneus infection with the brilliant green discharge over the entire surface of both legs. This organism proved to be resistant to all the antibiotics but within thirty-six hours after instituting acetic compresses marked regression followed. This exemplifies the importance of not forgetting some of the older pre-antibiotic era types of therapy.

Summary

In recapitulation, the following salient features of burn therapy are emphasized and these should be considered of paramount importance when dealing with any burn large or small, civil or military:

(1) Prompt and adequate initial treatment of the burned surface and of the individual as a whole, especially in reference to shock and sepsis.

(2) Careful and yet speedy care of the burn surface at all times, in either those of partial or full thickness skin loss. At the initial surgery of some casualties, two and even three teams may work together simultaneously on different parts of the body, to clean and dress the affected area in the shortest time possible.

(3) Early decision as to the type of therapy. Skin makes the best dressing and the use of split thickness grafts is indicated in practically all cases. Because of the marked scarification that results at both the donor and recipient sites it is felt that pinch grafts have no place in modern surgery.

(4) Avoidance of use of ointments or vaseline gauze in full thickness skin loss in the hope that this type of burn will close in from side to side and from below. Unfortunately it will not. There is no known ointment that will convert such a loss into healthy skin.

(5) Careful daily observation of the patient's general condition, especially in respect to nutrition, blood proteins and haemoglobin.

(6) Repeated cultures and sensitivity tests to determine the antibiotics of choice. This is especially important now, more than ever before, when we consider how many of the organisms with which we have to deal have become resistant to one or more of the antibiotics available.

Although this group of burns makes up a relatively small proportion of the many different types of casualties treated in the Far East, it has made an interesting study. Some of the methods used are by no means ideal, but as in other types of war casualties, certain modifications have to be made from those adopted in a civilian practice. The course followed in the majority of these cases is one which could be used in the event of any large civilian or military emergency which might arise where supplies of dressings and nursing facilities are taxed. Other principles outlined are essential in treating all burns no matter what facilities are available.

Book Review

The Basic Neurosis

According to Edward Bergler, while there are many neurotic rescue stations, there is but one basic neurosis. This is Oral Regression and Psychic Masochism, and what is meant by the term is explained in 350 pages.

Why, asks the author, do many people have such an insatiable, unconscious craving for self-damage? He then proceeds to give his answer and supports it with clinical evidence.

The chapter-headings give an idea of the ground covered: Symptoms and Signs of Oral Regression; One Neurosis is but many Neurotic Rescue Stations; The Nine-Point Basis of Every Neurosis; The Underestimated Superego; Twenty-seven Clinical Pictures of Oral Regression (These include over-eating, over-smoking, kleptomania, gambling, alcohol addiction); Differential diagnosis. These are some of topics discussed.

The author is a psychoanalytical psychiatrist who was on the staff of the Freud Clinic in Vienna. He has written copiously.

The book is scarcely one for the general medical reader who wishes to apply what he reads. But it adds its quota to the greater illumination of the mental process of sick people. Bergler's arguments have not gone unchallenged. Yet he makes out a good case for his own theories and the histories are interesting as well as instructive, for he works out every aspect of basic neurosis in them.

The Basic Neurosis, Oral Regression and Psychic Masochism, by Edward Bergler, M.D. Grune & Stratton, New York, 1949. Toronto: The Ryerson Press, 299 Queen St. W., Toronto 2B. 350 pages, $5.50.

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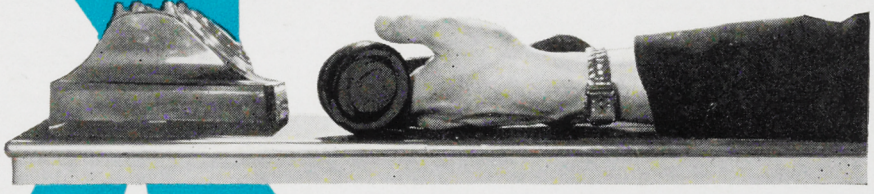

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Anaesthesiology

Abstract

Anaesthesia Vol. 6, October, 1951, p. 221. The Value of Intravenous Procaine Analgesia in the Treatment of the Chest Injury. John R. Rook, M.B., Ch.B., D. A. Birmingham Accident Hospital.

Chest injuries result in pain which often causes cardio-respiratory embarrassment and may later be complicated by atelectases and "wet lung." This may be serious for the elderly patient or for the chronic bronchitic. Early pain relief with intravenous procaine will aid greatly in the nursing problem and will help to prevent the onset of complications.

If the patient shows evidence of cardio-respiratory embarrassment (cyanosis, barely moving chest, low blood pressure) on admission, oxygen is given by B.L.B. mask and intravenous procaine started immediately, before moving him from the Casualty Department. Once the procaine takes effect (about 10 minutes), color improves and a more detailed examination may be done before moving him to a ward. If pain is the only evidence of the injury, the procaine may be delayed until the patient is in bed. After carrying out a skin sensitivity test, a solution of 0.2% procaine, made by mixing 1 gm. of procaine with 500 c.c. of normal saline is started as an I.V. drip in an ankle or foot vein. This leaves the patient free to move about and carry out breathing exercises. The drip is run at 160 drops per minute until the patient feels slightly dizzy, which will occur in about three minutes. It is then slowed to 80 drops per minute for the remainder of the fluid. After 100 c.c. has run in, he will experience a feeling of warmth and well being. After 150 c.c. he will be able to take a deep breath with very little discomfort, and after 250 c.c. he will be able to cough without pain. The author emphasizes the importance of securing the co-operation of the patient and points out that confidence is gained by the accurate prediction of the subjective symptoms which will occur.

Details of three cases are reported showing the excellent effects of the procaine in chest injuries and demonstrating that where intra-abdominal injury is also present, the I.V. procaine does not mask the signs which lead to an accurate diagnosis. It has been used in 26 cases. Repeated infusion may be given twice a day as long as necessary. This method of treatment in severe chest injuries is to be preferred to intercostal nerve block. It is a simpler technical procedure, less liable to complications, and does not require painful positioning of the patient.

Current Researches in Anaesthesia and Analgesia. Vol. 32: 206, 1953. Use of Slowly Absorbed Suspension of d-Tubocurarine Chloride in Rectal Surgery. Norris E. Lenahan, M.D., and Walter H. Hamilton, M.D., F.A.C.S., Columbus, Ohio.

The problem of postoperative pain in anorectal surgery has not been satisfactorily solved by present methods. The cause of the severe pain peculiar to this type of surgery is discussed, and it is concluded that it is due largely to anorectal muscle spasm. Centrally acting narcotic drugs do nothing to relieve the cause of the pain and often fail to give even temporary complete relief. A new method for the control of postoperative anorectal pain is presented which is based on the relief of muscle spasm by d-tubocurarine, acting directly on the peripheral neuromuscular structures. A slowly absorbed preparation of the drug ensures an even, sustained effect and there is no danger of respiratory paralysis. Sixty-one cases operated on for rectal fissures, fistulas or hemorrhoids are reported. Thirty-one were given slow absorbing d-tubocurarine and thirty were used as controls. By comparing the amount of narcotics necessary in the two groups, it was found that there was a significant reduction in the amount required by the patients receiving tubocurarine. Ambulation was more prompt, anorectal spasm was absent or less frequent, allowing digital examination. Catherization was not necessary in the treated group.

The following routine was carried out: The drug was injected intragluteally about one-half hour before the anticipated completion of the operation. Later in the series the injection was made at the commencement of the surgery, with no change in results. The dose used was 0.5 mg. of tubocurarine chloride per kilogram of body weight. The maximum dose did not exceed 50 mg. The preparation used in this investigation contained 25 mg. of d-tubocurarine chloride pentahydrate suspended in a menstruum of peanut oil, oxycholesterol and beeswax. There are products on the market locally containing 27 mg. per c.c. The vial is warmed and shaken well before the required dose is withdrawn. The dose may be repeated in 8 hours if necessary.

It is suggested that the usefulness of tubocurarine following abdomino-perineal surgery would be worth exploring.

Dr. M. R. Bennett.

College of Physicians and Surgeons of Manitoba

Specialist Register

The following by-law was approved at the Annual Meeting of Council on October 13th, 1951:

WHEREAS the College of Physicians and Surgeons of Manitoba deem it desirable that a Register of Specialists be established and maintained by the College.

AND WHEREAS The Medical Act provides for the recording of higher degrees or additional qualifications of persons whose names appear on the Manitoba Medical Register.

NOW THEREFORE BE IT ENACTED and it is hereby enacted as follows:

1. That the Council do establish and maintain a Register to be kept by the Registrar to be known as the Specialists Register in which shall be entered the names of all persons who have complied with the provisions hereof.

2. Any person whose name appears in the Manitoba Medical Register and who is either:

(a) A Fellow of the Royal College of Physician sand Surgeons of Canada; or

(b) A certificated specialist of the Royal College of Physicians and Surgeons of Canada;

shall be entitled to have his name entered in the Specialists Register.

3. Any person whose name appears in the Manitoba Medical Register may at any time before January 1st, 1954, make application to be registered as a specialist and upon approval of his application by the special committee, apointed as hereinafter provided, may have his name entered in the Specialists Register.

4. The special committee hereinbefore referred to shall consist of six members as follows:

(i) Two representatives of the College of Physicians and Surgeons of Manitoba appointed by the Council and of whom one shall be the chairman of the committee;

(ii) Two representatives of and appointed by the Faculty of Medicine of the University of Manitoba; and

(iii) Two representatives of and appointed by the Manitoba Medical Association.

The members of the committee shall hold office until and including the 31st day of December, 1953, on which day the said committee shall cease to function. It shall be the duty of the committee to pass upon the qualifications of any applicant for registration in the Specialists Register to accept or reject the application.

5. On and after the 1st day of January, 1954, either a fellowship of the Royal College of Physicians and Surgeons of Canada or an enrollment therein as a certificated specialist shall be accepted standard for registration as a specialist, provided, however, in special circumstances a person whose name appears in the Manitoba Medical Register and who is not a Fellow or certificated specialist of the Royal College of Physicians and Surgeons of Canada may apply to have his name entered in the Specialists Register. The Council, after inquiry into the circumstances of the case, may in its sole discretion accept or reject such application and if accepted direct that upon payment of the presribed fee the name of the applicant be entered in the Specialists Register.

Application form accompanied by supporting documents and the fee of Five Dollars ($5.00) payable at par in Winnipeg, should be forwarded to Dr. M. T. Macfarland, Registrar, 604 Medical Arts Building, WINNIPEG, Manitoba.

Incidence of Communicable Diseases

R. G. Cadham, M.D., D.P.H.
Deputy Medical Health Officer, Winnipeg

The Decline in the Incidence of Communicable Diseases in Winnipeg from 1911 to 1950

The following is a report on the decline in the incidence of the major communicable diseases in Winnipeg during the past four decades.

Diphtheria

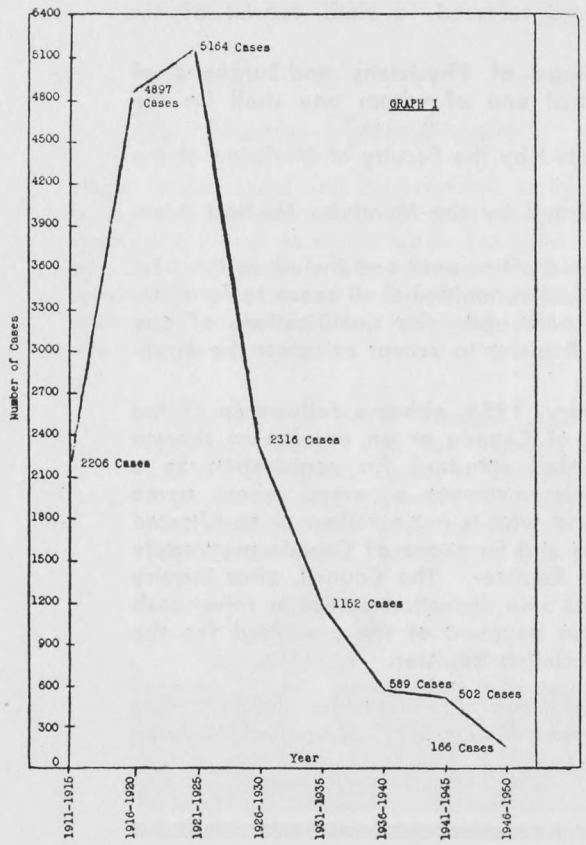
In 1911, which was the first year a system for maintaining accurate records of infectious diseases was set up by the City Health Department, there were 583 cases of diphtheria with 79 deaths, the population of Winnipeg at that time was only 150,000. During the next 20 years (1911 to 1931) the number of annual cases of diphtheria varied from 1,395 in 1923 to 250 cases in 1931 with the annual deaths varying from a high of 84 deaths in 1920 to 8 deaths in 1930.

For the past 25 years there has been a steady decline in the incidence of diphtheria and a corresponding reduction in diphtheria deaths. In Graph I is shown the number of cases and in Graph II the deaths reported by 5 year periods from 1911 to 1950. In 1951 there were only 3 cases reported—each patient recovered.

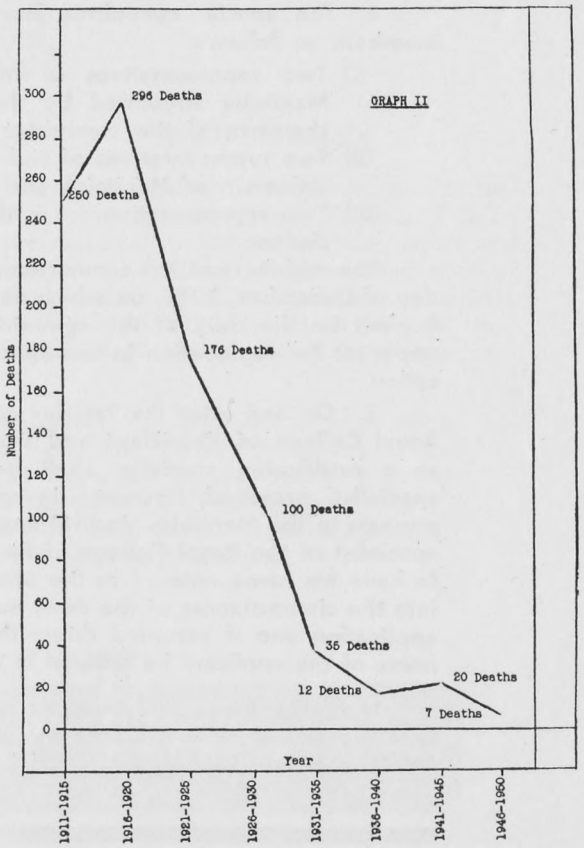
This marked decline in the incidence of diphtheria is also noted in the United States and also in many other countries; however occasionally, localized epidemics continue to be reported.

Many factors have contributed to the reduction in the annual number of diphtheria cases and deaths. Examination of the United States statistics compiled 60 to 70 years ago discloses evidence that even then a gradual decline in the incidence of diphtheria was taking place; that of course was prior to any modern methods of treatment and control. However, following advent of the use of antitoxin, of the method of prophylactic immunization with diphtheria toxoid and of the use of antibiotics, a more rapid decline in the incidence of diphtheria is apparent. So marked has been this decline that the disease is now comparatively

Diphtheria Cases
Totals by Five Year Periods 1911-1950



Diphtheria Deaths
Totals by Five Year Periods 1911-1950



rare in many countries. Probably the major reason for this rapid decline resulted from the general adoption of the prophylactic method of immunization by the administration of diphtheria toxoid. This method is now employed throughout the world. In Winnipeg we estimate that 80 to 85 per cent of the children have been immunized against diphtheria.

Scarlet Fever

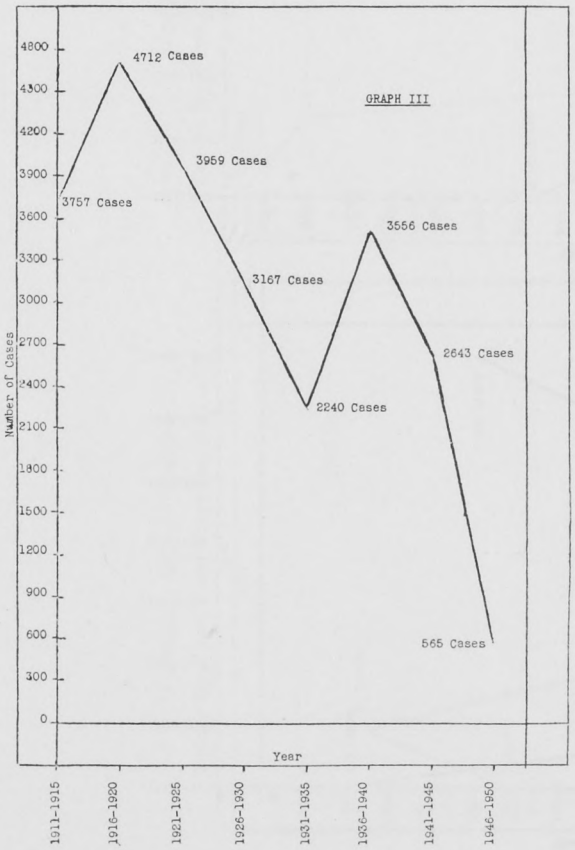
In 1911, 1,030 cases of scarlet fever were reported in Winnipeg; of these patients, 124 died. In 1950 there were 103 cases with no deaths—a reduction of 100% in the deaths from this disease.

Although the decline in the incidence of scarlet fever has not been as marked as that of diphtheria, the decline in the number of deaths has been even more dramatic. There has not been a scarlet fever death recorded in Winnipeg since 1944. In addition, the complications of scarlet fever have become comparatively rare. It is now unusual to see scarlet fever patients develop cardiac, kidney or ear complications. These sequelae were common 15 to 20 years ago. In 1951 there was an increase in the number of cases of scarlet fever, 639 cases were reported, however the disease was of such a mild nature that no deaths occurred and complications were almost non-existent.

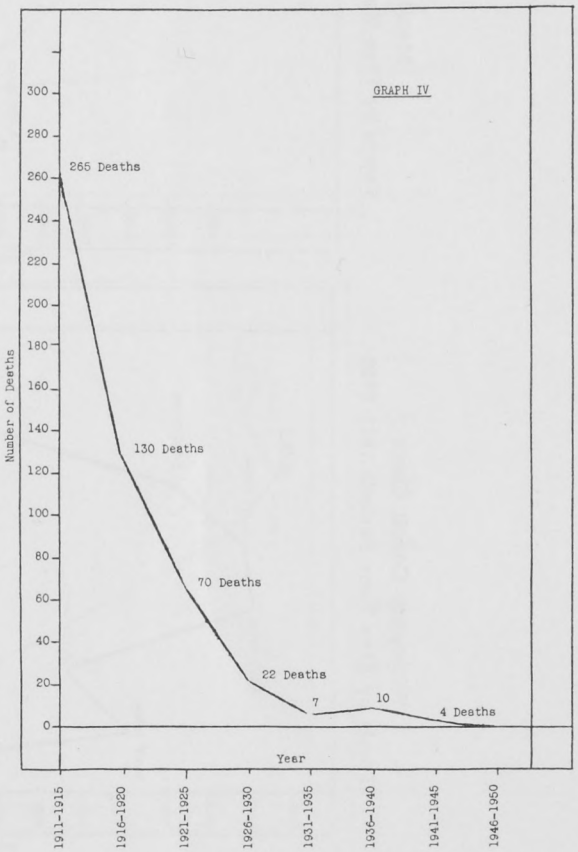
In Graph III is shown the number of cases and in Graph IV the deaths by 5 year periods from 1911 to 1950.

This reduction in the incidence and severity of scarlet fever has also occurred in most parts of the world and the reason for the decline remains unexplained. The use of scarlet fever antitoxin and of prophylactic immunization may have accounted for some of the decline; also in the past few years there is no doubt that the use of the sulphonamides and of the antibiotics for the treatment of scarlet fever have been important factors. Our concept of the present status of scarlet fever is perhaps best illustrated by the change in the regulations for isolation measures for patients with this disease. Until 1947 the isolation period for a patient with scarlet fever was 28 days; in 1947 the isolation period was reduced to 10 days and in 1951 it was again reduced to—"until clinical recovery"—this now usually requires less than one week.

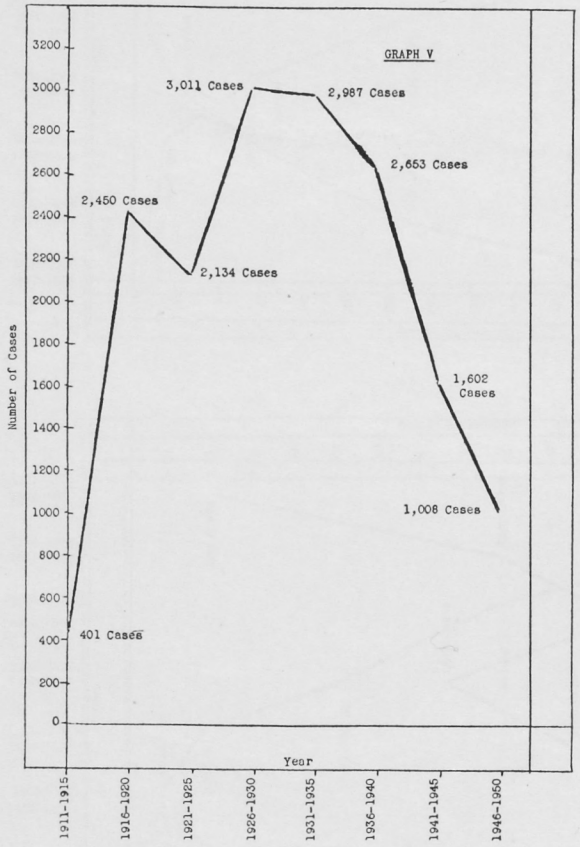
Scarlet Fever Cases
Totals by Five Year Periods 1911-1950



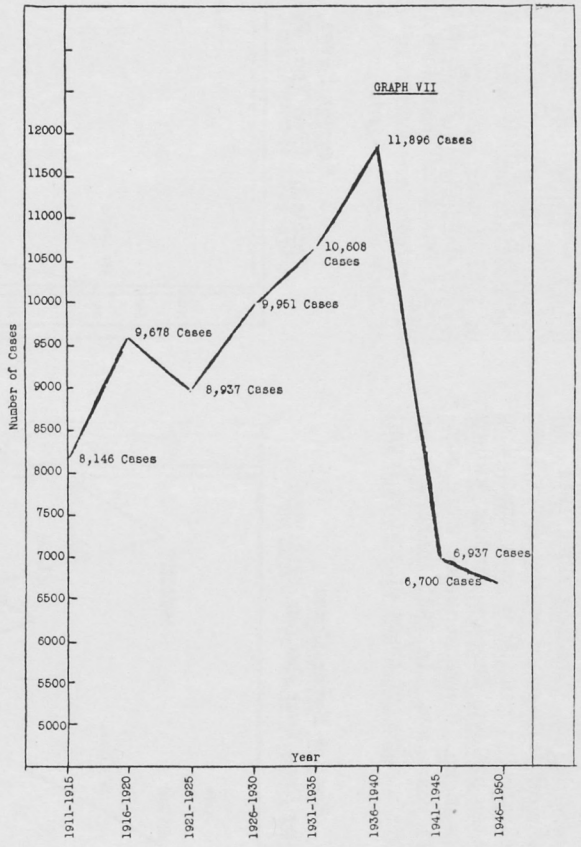
Scarlet Fever Deaths
Totals by Five Year Periods 1911-1950



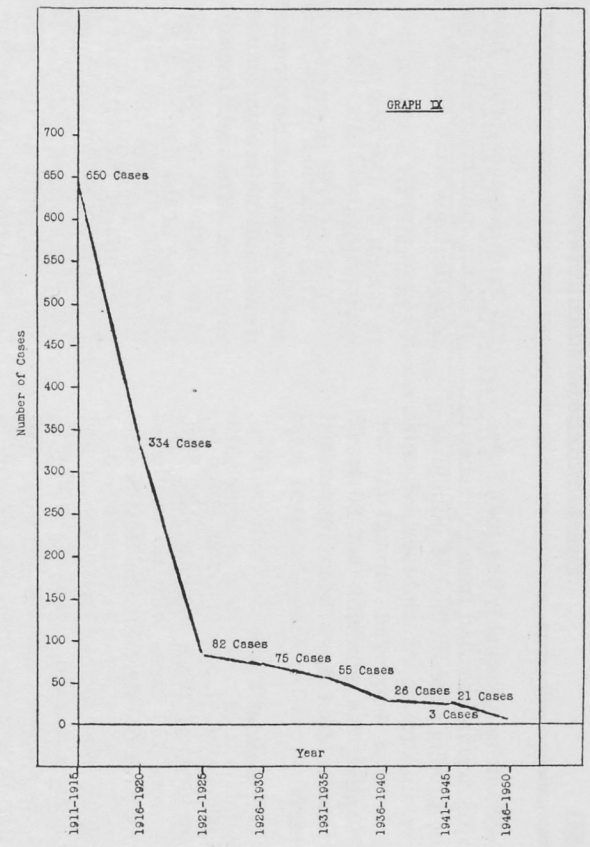
Whooping Cough Cases
Totals by Five Year Periods 1911-1950



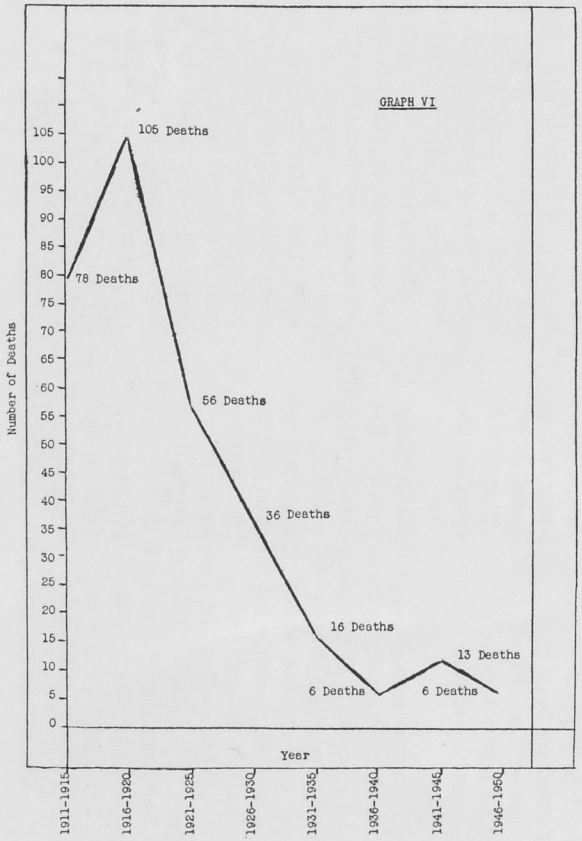
Measles Cases
Totals by Five Year Periods 1911-1950



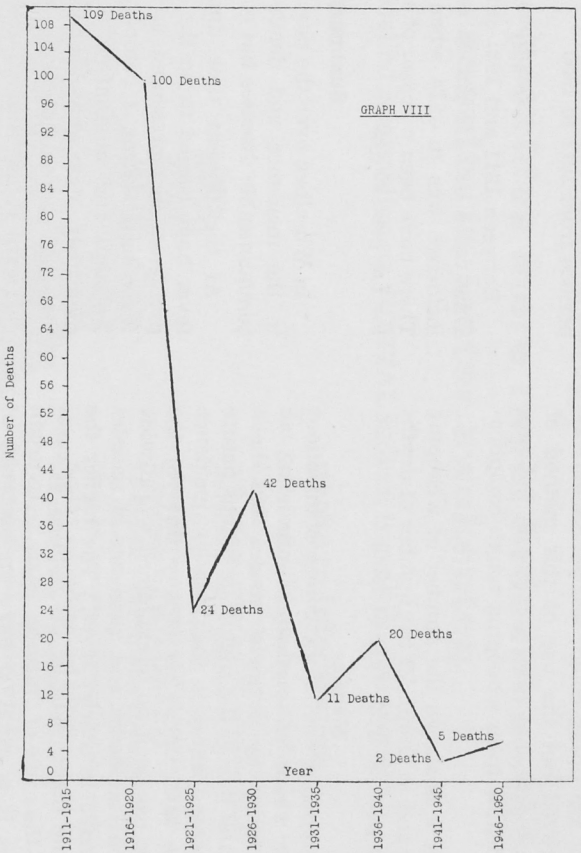
Typhoid Fever Cases
Totals by Five Year Periods 1911-1950



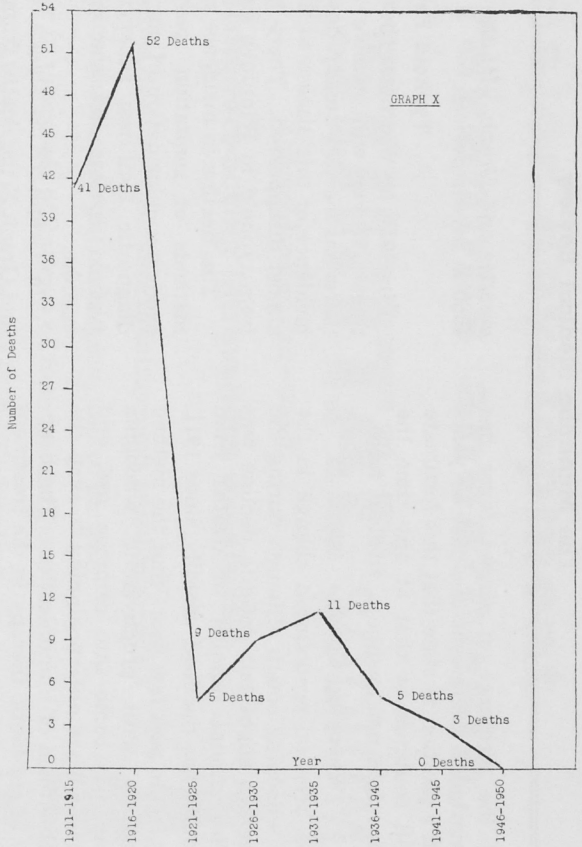
Whooping Cough Deaths
Totals by Five Year Periods 1911-1950



Measles Deaths
Totals by Five Year Periods 1911-1950



Typhoid Fever Deaths
Totals by Five Year Periods 1911-1950



Although the virulence of scarlet fever has shown a remarkable decline in the past 30 years we are not in a position to state that this fortunate condition will continue or that at any time the disease again might not assume a virulent form.

Whooping Cough

There has been no pronounced change in the incidence of whooping cough although during the past four years a slight but definite decline was evident. The annual number of deaths from whooping cough has declined steadily since 1911.

It is only in the past few years that the method of immunization with prophylactic whooping cough vaccine has come into common use, and it may be that we are only beginning to reap the benefits of this form of immunization. The beneficial results of antibiotic therapy in the treatment or control of whooping cough has yet to be conclusively proved but the use of this method of treatment has probably been a factor in the prevention of deaths from whooping cough complications.

In Graph V is shown the number of whooping cough cases and in Graph VI the number of deaths by five year periods from 1911 to 1950.

Measles

Measles remains one of the common infectious diseases for which no method of producing an active immunity by artificial means has been discovered and due to the highly infectious nature of this disease probably the measles incidence remains the same today as at any time in the past. There has been no unexplained world-wide decline in the incidence and virulence of measles as has occurred in scarlet fever. The higher the birth-rate the higher will be the number of cases reported in the cycle of "measles years." In urban communities it is usual to have an outbreak of measles every 3 to 5 years at which time a large proportion of children born during the intervening years will contract the disease and hence a relatively immune population is developed until the population immunity balance is again upset by the cycle.

The annual deaths from measles have declined in a manner similar to that of the majority of the other infectious diseases. The explanation for this decline is probably that improved methods of treatment now prevent the serious complications of measles usually responsible for measles deaths. In addition, the discovery and use of gamma-globulin as a passive method of prophylactic immunization in debilitated children exposed to measles has been an important factor.

Graph VII shows the number of cases of measles and Graph VIII the deaths from 1911 to 1950 in 5 year periods.

Typhoid Fever

In 1911 in Winnipeg there were 123 cases of typhoid fever with twelve deaths. Since then, there has been a steady downward trend in the incidence of this disease to the point where it has almost disappeared. There has not been a death from typhoid in Winnipeg since 1942.

This decline in incidence results from improved methods of sanitation; pasteurization of dairy products; chlorination of our water supply; better diagnostic facilities; supervision and control of typhoid carriers and immunization with typhoid vaccine.

In Graph IX is shown the number of cases and Graph X the deaths from typhoid by five year periods from 1911 to 1950.

Smallpox

Between 1911 and 1931 smallpox was endemic, some cases being reported each year. The peak incidence was in 1924 when 126 cases occurred. There have been no cases of smallpox in Winnipeg for the past 20 years.

Summary

In Winnipeg over the past forty years a decline in the incidence and death-rates for the major communicable diseases has occurred.

At the present time diphtheria and typhoid fever have ceased to be the serious public health problems they presented in the past, and scarlet fever has become a comparatively mild disease. Isolation and quarantine regulations have been modified. Measles and whooping cough, however, are still serious infections in debilitated infants.

Death rates from all infectious diseases have shown a remarkable decline. Our population has steadily increased and if the number of cases and deaths reported were converted into morbidity and mortality rates per hundred thousand population the extensive decline of cases and deaths would be even more impressive.

No individual is able to predict accurately that an epidemic of this or that disease may or may not occur or that a more virulent form of these infections may return—but statistics indicate that, with the exceptions of poliomyelitis, influenza, encephalitis and measles the majority of our former principal infectious diseases are now comparatively well controlled and will probably continue to be controlled provided the present high level of health procedures and the immunization of children against these various diseases is maintained.

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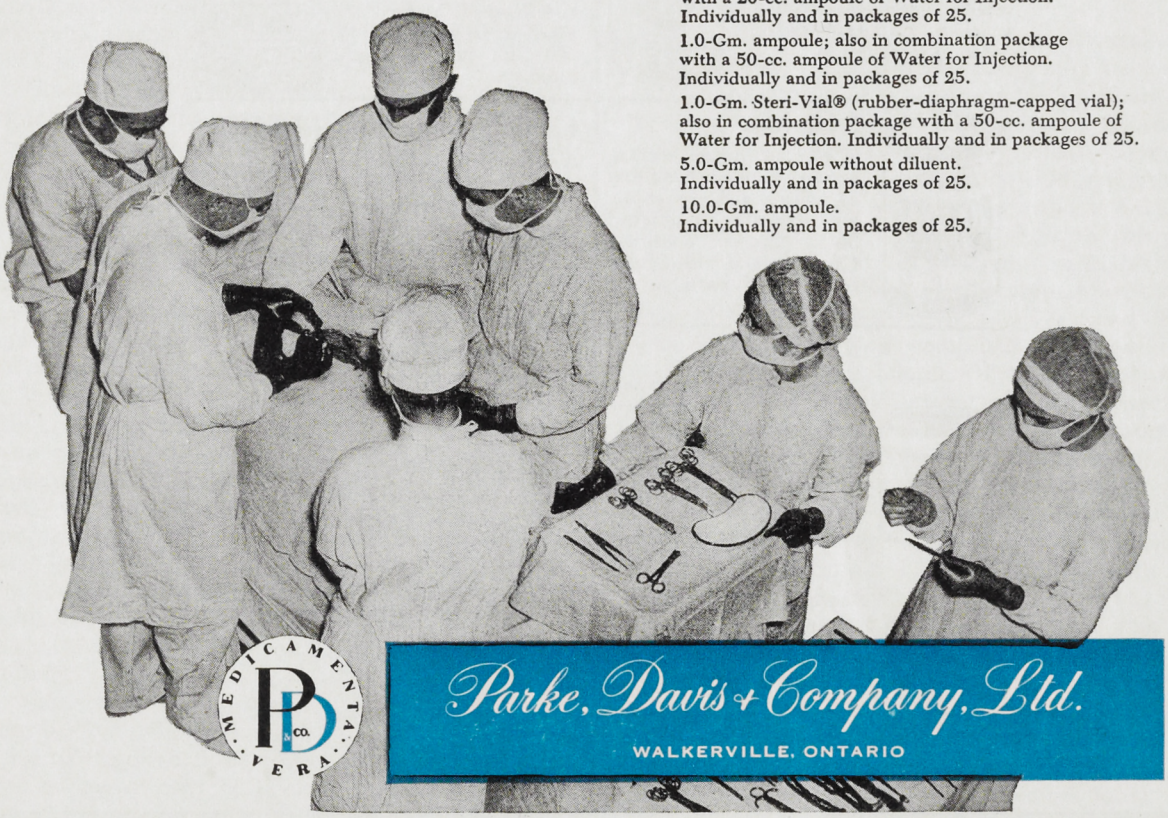
5.0-Gm. ampoule without diluent. Individually and in packages of 25.

10.0-Gm. ampoule. Individually and in packages of 25.



MEDICAMENTA VERA

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Fugitive Pieces

A Syllabub of Verjuice

J. C. Hossack, M.D., C.M. (Man.), Editor

I have no doubt that during the past few months many who read this will have spent some time in fishing. It is not the timeliest of topics but it can be discussed in retrospect. Besides, a new edition of Izaak Walton's "Compleat Angler" has just been published and some of you may have purchased a copy.

In his masterpiece, you may remember, Izaak's companions were Venator, a hunter, and Auceps, a falconer. They all seemed to get a kick out of killing which, I suppose, made them easier to get along with at home. Personally I find it difficult to see how any pleasure can be derived from watching a falcon swoop upon its timid prey, or from sending a bullet into that most graceful and gentle animal, the deer. Perhaps a well-placed bullet spares the creature a greater agony but I question if hunters are motivated very much by the spirit of euthanasia.

Fish, however, are in a different category. Voiceless, they suffer and die in silence. Their eyes, unlike those of the deer, leave the heart untouched and move the bowels of compassion so very slightly that on a clinical chart the result would not rate even the smallest of s.b.m's. For this reason such slaughter as I have done among the lower creation has been among fish.

Now, I may say that there are two ways of catching fish—one honest, the other dishonest. The dishonest angler conceals his hook in a creation made up of bits of fur, feather, cloth and what-have-you. This, for some reason, he calls a "fly." Having attached this entomological monstrosity to his line, he proceeds to make mystic passes over the stream or lake wherein lurk his quarry. He continues to do this until he becomes exhausted or has succeeded in arousing the curiosity of the finny natives.

It frequently happens that his antics and his "fly" stir interest in some lethargic denizen of the deep who, intrigued by this strange spectacle, looks at it first casually, then with growing attention. "What" he asks himself "might that be?" and, having added (like Pasteur) "I do not know," like Pasteur again, he proceeds to investigate. The chances then are that, too late for future guidance, he will learn how wise it is for one to keep his mouth shut when he is not sure of the answer.

Sometimes the dishonest angler fabricates a contraption which bears some resemblance to a little fish and which he bedecks with twirly things and an assortment of hooks. This is ordinarily towed behind a moving boat and is guaranteed to make the most languid and blase fish sit up and take notice. Thus some old codger quietly engaged in taking his ease is roused by the sight of this weird object as it whirls into his ken. He rubs his eyes, misses a breath or two and mutters "Now what in blazes can that be?" Like the one that fell for the "fly," he too takes off in pursuit and probably ends up by finding that curiosity kills fish as well as cats.

Hooking a fish is merely a preliminary to this kind of angler's enjoyment. Next comes the "playing" of the captive. This is a game in which the amusement is very one-sided. The purpose is to prolong as much as possible the interval between hooking and unhooking—the latter being a post-mortem operation. Certain kinds of anglers are specially interested in what they call "game fish." These are creatures which, possessed of a not unnatural desire to live, exhibit a determination to hang to life as hard and for as long as they can. They therefore continue to struggle fiercely until exhaustion and despair quite vanquish them.

Angling in such fashion is most reprehensible. It is a resort to low trickery. It is the practice of gross and flagrant deception. And, as a person who cheats in one thing is liable to cheat in other, if not in all things, anglers of this sort are therefore people who can bear watching.

If one **must** catch a fish because otherwise he would starve, such base measures may be legitimately practiced. But anyone who is merely out to show that his duplicity and guile, and therefore brain-power, exceed that of a creature not a fiftieth his size and possessed of minimal intelligence, such a person should be ashamed of himself.

Now, I have on a few occasions in the past played Piscator myself. But my methods were strictly honest. I chose as my prey two sorts of fish: those with dangerously low I.Q's and those who were bent upon committing suicide. My technique was very simple. I tied a hook or a bent pin to a piece of string, attached thereto a worm or a fragment of decayed fish (according to the locale) and dropped this in the water.

No attempt was made at concealment. Any fish with half an eye in his head could see the device and no creature with the slightest modicum of intelligence would have touched it with the metaphorical ten-foot pole unless he was deliberately careless of his life. But some fish **did** touch it, more, they swallowed it and, as a result, made their exit from this vale of tears.

It is perfectly obvious that the fish so captured must have been either exceedingly dull-witted or exceedingly unhappy. I felt that by capturing the former I merely shortened what could not in any case have been a long life. Any creature that will

gulp down a palpable hook is a menace to himself and to his society. In human terms he would be the fellow who pulls the trigger to discover, only after he has killed someone, that the gun really was loaded. Left to his own devices there's no saying into what horrible scrapes a nit-wit fish would get himself and others. Therefore, I felt that the removal of such was an act of charity.

The other victims of my hook and line were beyond question deliberate suicides. If you were to ask me what might lead a fish to commit felo da se I would have to admit that I do not know. I am exceedingly ignorant of fish psychology. It is possible, however, that fish suffer from the same afflictions that lead human beings to contemplate self-slaughter—the pangs of unrequited love, the law's delays, the insolence of office and the spurns that patient merit of the unworthy takes. It doesn't sound reasonable but then, as I said before, I know very little about what may appear reasonable to a fish.

Moreover, there is something about a fish that makes the possibility of his entertaining thoughts of suicide not at all unlikely. No one has ever seen a fish laugh or even smile. Per contra, his expression is the most utterly lugubrious of all created things. He constantly exhibits a dejected 'haviour of the visage. What private griefs he has that make him look thus, alas I know not, but they must be many and weighty. It is not difficult to translate his noiseless gaspings into a soliloquy in which he reasons thus with life: "If I do lose thee I do lose a thing that none but fools would keep," together with other meditations along the same line, whereafter he slowly finds his way to the nearest naked hook.

The hesitation which the angler notes as the doleful creature approaches the lethal weapon may be due to further cogitations. On the brink of the tomb it is not at all unlikely that he may mutter: "Aye, but to die and go I know not where; to be imprisoned in the viewless winds or caged in regions of thick-ribbed ice! 'Tis too horrible! There's the respect that makes calamity of so long life; that mysterious sea from which no fish returns puzzles the will. And yet, merely I am Death's fool, for him I labour in my flight to shun yet swim towards him still." You see he is probably a very well educated and philosophical fish which knows quite well the difference between a hook and a hand-saw. After all that shouldn't surprise you when you recall how fish are nearly always found in schools!

I trust you appreciate the vast difference between this sort of angling, where the angler is completely a benefactor, and the guile-cum-greed method in which the fisherman, after stooping to the lowest depths of deceit, sates his sadistic appetite by watching the prolonged death-throes of his victim.

. . . . . .

Most of my fishing was done at the sea-side. Close to the harbour of my native town (Dr. Charles Hunter knows the place) there is an inlet which, in my boyhood, was thronged with fish. Whitings, codlings and other sizeable members of the piscine family were there in numbers, attracted in some part by the quiet water but chiefly because at the end of the inlet was a fish-curing establishment the offal wherefrom they shared with the gulls.

When I was there last summer I hoped to repeat my triumphs of the past but, alas, old times were changed, old customs gone. The fish-curing establishment had been demolished and oil tainted the water. There was a time when one would watch the fishing boats glide out to sea their brown sails bellied by the gentle off-shore breeze. Now engines not sails, oil not wind, give them motion. And the oil drifts shoreward and clings to the rocks and drives the fish elsewhere.

I sat where I had sat so many times before, so long ago, when the moment was all that counted; when unborn tomorrow and dead yesterday touched me not, and past regrets and future fears had not yet found their way into my thoughts. The empty inlet was but a symbol. So many other things had become empty. Only when I closed my eyes and shut my ears did life and youth come back to the water and to the shore. Then people now bowed walked straight again, and people now old were young again, and others, whom death had touched upon the shoulder were, for the moment, loosened from his thrall to leap and laugh in this little company of ghosts. And the little fish-ghosts (or some of them) were likewise there in the flesh or, rather, in the fish because, as you know, we distinguished fish, flesh and fowl.

. . . . . .

But the fish whose capture I most remember came from a river and not from the sea. It brought me a certain degree of fame and the circumstances surrounding the occasion are therefore not likely to be forgotten.

I was a very small school-boy at the time and had rashly entered myself in a fishing competition. Why I did this goodness alone knows because, so far as I can remember, I had never fished in a river before. The contest began at dawn one day and lasted till dusk. The scene was a little stream called Eden Water. I never learned how it came to be so called because it was nowhere near the Garden of the same name. I spent the previous evening filling a tin with a very large number of worms, and when dawn broke I sallied forth.

I chose a pleasant stretch of the stream, laid down my worms, my lunch and something to read should the fish give me leisure. None of my competitors was in sight. I learned the reason later. They were people of experience and regarded my spot as the most unpromising of the whole brook.

The fish showed no interest in the assortment of worms which, one after the other, I dangled before them. The lazy sun crept slowly higher keeping his eye upon me but I had nothing to show him. I mused on what I saw about me. Through the trees rose the distant battlements of Home (pronounced Hume) Castle a grim, ancient watch-dog of the Scottish Borders. Crowning a commanding hill it had for centuries surveyed the view for many a long mile. Time and again it had resisted attack, had fallen, had been recaptured, had been retaken, now by the Scots, now by the English. Its walls had been bruised by arrows, by balls of stone and by balls of iron. Fire and angry enemies had gutted it and gutted it again. Now in ruins it bit like a jagged tooth upon the sky.

Proud men had builded it and lived in it and died in it and one of them was a King for it was to Home that the fourth James was carried to die after the bloody defeat at Flodden. Within the castle walls is a well and, so the story went, into it had been dropped the iron chain which James had worn about his body (beneath his clothes) and to which each year he added a link as penance for his unfilial behaviour. The well was deep and much had fallen into it since 1516. But when ever I had a chance I peered into the depths of the black pit straining my eyes in vain for a glimpse of the rusty chain.

I interrupted my ruminations to replace my unused worm.

In those days were waged many large and small battles as English troops sought to restrain or to repel or to punish the raiding Scots; or when, in their turn, the Scots carried war beyond the Tweed.

The very spot whereon I sat had been the scene of more than one sanguinary skirmish. The little stream before me had more than once run red with blood. The trees that gave me shade were the children of parents which had sucked through their roots and into their branches the substance of gallant men who had fallen where I now rested.

I found that my worms were escaping and devoted some time to their recapture. The sun had cleared the clouds from his face but I still had nothing to show him.

This time when I sat down the Eildon Hills were before me—the Tres Montes of the Romans. They had built a camp there which they called Castra Trimontium. It was for the purpose of keeping the Scots in check, as if anything could do that! But the camp had not yet been discovered. My thoughts therefore had no latin tinge but soared across the hills to Melrose and its Abbey and to Abbotsford.

Sir Walter was my friend and I was no stranger in his house. Privileged by my youth I had been permitted to sit in his chair at his desk where he had written each day a chapter of the Waverly novels. He was my friend because of his tales for he told me much about what I had also seen and about what I hoped to see; and, thanks to him, I had held the keys that gallant young Douglas flung into Loch Leven when he rescued from her prison the lovely Queen of Scots.

While I had been thus revisiting Abbotsford the sun had been declining and his face was veiled when the unexpected happened—the rod twitched a little. As it continued to twitch I surmised that I had caught something—and so I had. It was a fish but such a very little fish, so small in fact that I hurried to free it from the hook so that its little life might have a longer span. But the fates were against us. By the time I had freed him the tiny creature had given up his infinitesimal ghost to go wherever such things go. His corpse I put into my creel.

The day dragged to its close with no more trophies of the chase. I liberated such worms as had not already made their escape. After a while I gathered up my belongings and made my way to the place of judgment. I was curious to learn how the other competitors had fared.

I was the last to arrive and was conscious of a settled air of dejection about the place. I looked but I saw no fish. One of the judges glanced at me and asked "Catch anything?" I answered "Yes." At once those who were about looked up as if I were the bearer of great tidings.

"Let's see" demanded the judge and I opened my creel. Some others were stirred to look. He brought forth my fishlet, held it by the tail, displayed it, shrugged his shoulders and turned to his fellow-judges.

One of the judges suggested calling the whole thing off. I was the only one who had caught anything and look at what I'd caught! Others claimed that they had done better than I had and had flung their catch away.

Of the other two judges one was a righteous judge, the third was, undecided. Two prizes were at stake. One for the largest fish and one for the largest catch. The unjust judge argued that such a minuscule fish could not be called largest when it wasn't even large, that, in fact, there couldn't be a largest unless there were at least three fish to compare.

The just judge contended that where there was only one fish it had perforce to be the largest seeing that there was nothing larger. The holder

of the casting vote remained silent.

In the matter of the "largest catch" the unjust judge held that it wasn't really a catch at all and certainly not worth the prize. The just judge, however, held that while "one" was a very small number it was still larger than "nothing" which wasn't a number at all but only a figure.

Meanwhile I was tired and hungry and quite indifferent to their arguments or decisions, and then the third official delivered his judgment. One was larger than nothing therefore I got the prize for the largest catch. One very small fish was larger than no fish at all so I got that prize also. The fact that I was by far the youngest competitor and the fact also that the room was filling with the aroma of the banquet which concluded the competition probably influenced the judges as much as logic. Anyway they gave me my prizes and the company gave me a cheer and I went off rejoicing.

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I have no need of the new edition of the" Compleat Angler" for my old copy, bought long ago and dipped into occasionally, will serve me well enough. But if you do not have it, get a copy. There is much refreshment in its pages, much stirring of memory and of imagination, much of beauty in its language. For example:

"Look! under that broad beech tree I sat down, when I was last this way a-fishing. And the birds in the adjoining grove seemed to have a friendly contention with an echo, whose dead voice seemed to live in a hollow tree, near to the brow of that primrose hill. There I sat viewing the silver streams glide silently towards their centre, the tempestuous sea; yet sometimes opposed by rugged roots and pebble-stones, which broke their waves and turned them into foam. And sometimes I beguiled time by viewing the harmless lambs; some leaping securely in the cool shade, whilst others sported themselves in the cheerful sun; and saw others craving comfort from the swollen udders of their bleating dams. As I thus sat, these and other sights had so fully possest my soul with content, that I thought, as the poet hath happily expressed it:

I was for that time lifted above earth
And possest joys not promised in my birth.

As I left this place, and entered into the next field, a second pleasure entertained me: 'twas a handsome milkmaid, that had not yet attained so much age and wisdom as to load her mind with any fears of many things that will never be, as too many men too often do; but she cast away all care, and sung like a nightingale. Her voice was good, and the ditty fitted for it: it was that smooth song which was made by Kit Marlow, now at least fifty years ago; and the milkmaid's mother sung an answer to it, which was made by Sir Walter Raleigh in his younger days.

They were old-fashioned poetry, but choicely good, I think much better than the strong lines that are now in fashion in this critical age. Look yonder! on my word, yonder, they both be a-milking again. I will give her the chub, and persuade them to sing those two songs to us.

God speed you, good woman! I have been a-fishing and am going to Bleak Hall to my bed, and having caught more fish than will sup myself and my friend, I will bestow this upon you and your daughter, for I use to sell none.

Milk-Woman. Marry! God requite you, sir, and we'll eat it cheerfully; and if you come this way a-fishing two months hence, a grace of God! I'll give you a syllabub of new verjuice, in a new-made haycock, for it, and my Maudlin shall sing you one of her best ballads; for she and I both love all anglers, they be such honest, civil, quiet men. In the meantime will you drink a draught of red cow's milk? You shall have it freely."

. . . . . .

The moral? If you angle be "honest, civil and quiet" and your reward will be a draught of red cow's milk on the spot, and later on a syllabub of verjuice. Isn't that nice?

(What is syllabub? A vinous drink containing cream. What is verjuice? Cider.)

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Editorial

J. C. Hossack, M.D., C.M. (Man.), Editor

A new Meaning For St. Luke's Day

On the 18th of October falls St. Luke's Day. There was a time when on the Sunday closest to this date the members of the society in a body attended divine service. But the custom has long since fallen into desuetude and attempts at its revival have been half-hearted and unsuccessful.

Yet it would be a pity to see the day go quite unregarded when a use can be made of it. Saint Luke is the patron saint of doctors, but patron saints have gone out of fashion though the virtues they personified were never more needful of advertisement and expression.

About "Doctor Luke," as Osler called him, we know little in the way of fact. Indeed, the sum of our certain knowledge is that he practiced in such a fashion as to win the love as well as the respect of those whom he attended, especially the Apostle Paul of whom he was not only the companion and biographer but also the giver of great comfort to the body and mind of that ailing, lonely and harassed missioner.

There are among our own ranks ailing, lonely and harassed men and women. We hear little about them because they are not anxious to expose their wounds, and the press of daily life keeps them from the thoughts of busy and prospering men. No one is really indifferent to their needs and no one will deny assistance once those needs are known.

Some years ago Dr. Walter Tisdale and Dr. Ross Mitchell, sympathetically thoughtful for others, established a Benevolent Fund for the purpose of assisting those who needed help, and each year it has proved its usefulness more often than one might think or wish.

The present chairman of the Fund is Dr. Walter Tisdale and with him on his committee are Drs. C. E. Corrigan, R. A. McPherson, T. E. Holland, K. R. Trueman and A. E. Childe. These and their predecessors in office have made it their duty to find where aid was needed and have acted as agents for the society in giving that aid. Whom have they helped? Colleagues who have fallen upon evil days; widows who once again must support themselves; children whom fate has cheated of their birth-right.

These are our own people and, in part at least, their care should be our charge. It is not pleasant to find one's self laid aside, no longer useful, with means diminishing and needs increasing while hope fades like the evening light. The empty waiting room and the silent telephone are not pleasant things to contemplate.

The lot of widows, particularly of young widows who must be father as well as mother to their children, is no less unhappy. And the children so deprived of parent and opportunity are of special concern.

The fund needs money to put into effect your charitable wishes.

I have suggested to Dr. Swartz that it might be helpful to the fund if the society were to establish the practice of using St. Luke's Day as the occasion when, each year, the fortunate express their gratitude for what they have gained and what they have been spared. The day dedicated to the memory of a kindly man seems a most fitting time for the doing of kindly deeds. By recognizing it in this fashion we not only perpetuate the medieval custom of honouring our patron saint but we do it in such a way as to show that we are not a company of strangers but a fellowship and a brotherhood which is, indeed, the essence and the spirit of our calling.

Perhaps the matter may come up at the October meeting.

It Pays To Be Dead

In the June issue of "The Canadian Doctor" I came across a most interesting item. The article dealt with medical incomes and set forth a table of comparisons. Engineers stood at the top of the list and nurses at the bottom. Clergymen were not mentioned at all which suggests that none of them so far have managed to get on friendly terms with the mammon of unrighteousness. What caught my eye was half way down where I read "Salesmen —$4466; Deceased—$4383; Other Professionals—$4311."

Now there, I submit, is a statement that will make you rub your eyes and then look twice: "Deceased — $4383; Other Professionals — $4311." Decease, it would appear, is a profession. I had never thought of that. Yet, come to think of it, it is practically a specialty. Anyone who gives as his occupation "Deceased" can be counted on as devoting every minute of the day to that one thing and nothing else.

But apparently this occupation (which is a very quiet one, entailing no physical or mental effort) is not unremunerative. By the change a salesman, who is supposed to be very much alive, loses only $83.00 and an "Other Professional" (whatever that may be) actually gains $72.00, while a farmer finds his income "upped" by $686.00, and an "entertainer" finds himself $1352.00 richer—that's more than $100.00 a month!

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Inasmuch as it is practically impossible for a Deceased to get around, and as his professional activities are limited to remaining in a state of complete inactivity, it puzzles me to find a reason for paying him better than four thousand dollars for doing the same thing that he would have to do in any case.

And where does the money come from? Can it be — perish the thought — that here is some political skulduggery? I have heard of Deceaseds in large numbers voting in elections. But that, thank goodness, was not in Her Majesty's Realm of Canada. Yet these are Canadian figures. Can it be that the C.C.F., or more probably the Socreds, have found a way of taking over in that happy clime where the Liberals cease from troubling and the Tories are at rest? I remember Dr. Aberhart promising living people $25.00 a month, but I can't recall anyone promising his supporters four thousand dollars a year after they were dead. Still, anybody naive enough to believe the one is quite gullible enough to believe — and vote for — the other.

This is quite the knottiest problem that I have tackled for many a long day. It bristles with difficulties. Granted that the money does come from somewhere, how, where and on what is it spent? And, again, the figure 4383 is an average. There must be a maximum and a minimum. I did not think that the adjective "dead" admitted of comparison but apparently it does. The "dead" get the minimum, when a deceased progresses to "deader" his income is increased until it reaches a maximum when he graduates into the ranks of the "deadest."

It is always possible, of course, that the word Deceased is being used in a Pickwickian sense. There once flourished (and may still flourish) a religious sect of which the slogan was "Millions now living will never die." That is as it may be, but many of us would more readily agree that millions now living are already dead, from the neck up at least. Are these the favoured ones?

And how do the Income Tax people come to know about them and classify them? Does the long arm of the tax-gatherer reach into the very tomb itself? One would expect that there he could get no more than a few particles of earth, a few grains of dust, a little ashes. But that will not satisfy him if something more negotiable is to be had, and inasmuch as a Deceased can claim no exemptions nor any expenses not much of his "earnings" are likely to be left to him.

The whole thing is terribly puzzling. But, on the whole, it is something not unpleasing to the money-minded who are likely to say as the homely lady said to the gentleman who called her beautiful "I know you are lying but I love to hear it so say it again." Deceased—4383.

Special Communication

In order to make the members of the profession conversant with the problems of the Association, it has been decided to publish special communications on subjects of special interest. These will be written by members of the executive and other committees. Members of the profession at large who have topics of general interest that they wish to present are invited to submit them to the editor.

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1 — Association Executive

Between socialist Saskatchewan to the west, conservative Ontario to the east, capitalist United States to the south, and communist Russia to the north, lies the Province of Manitoba in the very heartland of Canada, midway between the Atlantic and Pacific oceans. In this province of 246,500 square miles are about 800,000 people, living in widely scattered areas. These are served by about 800 medical men and women. The bitter cold and blizzards of the long winters, the heat, mosquitoes and flies of the summer, the poor roads and the pressure of work creates a challenge to the rural doctors that they accepted without question and have succeeded in giving to their patients medical service that compares very well with any in the world. His work, difficulties, trials and personal problems are well understood by his colleagues. With the passing of the years he is still the healer and friend and his patients trust him with their innermost secrets with the assurance that their confidence in him is well placed.

The physician, unlike most men, is working or "on call" 168 hours a week. He is unable to give much time to business matters that affect the profession and on this account the business of the Association has to be carried on by the Executive Committee. We thus have what is often known as "organized medicine." The public and sometimes the press are often openly hostile to the Association because they consider it a sort of union or "closed-shop." Lack of knowledge or understanding often leads to distrust.

In exactly the same way as the medical association is often misunderstood by the public, so is the executive of the association often misunderstood by the medical men and the women of the association.

There is nothing mysterious or sinister about the executive or the work they do. They have all been elected by the members of the Association to carry out the wishes of the Association. Problems that arise are dealt with at executive meetings which are held monthly. The doctors from the rural areas attend those meetings at a considerable sacrifice to themselves. Sometimes committees have to be appointed to study a problem, and at the next executive meeting a report is made to be acted upon.

The members of the executive are very industrious and very sincere in their efforts to serve the profession, in their efforts to foster good relations among the members, various governmental bodies, the newspapers, and, most important, among the public.

One of the latest requests for executive action concerns a resolution from the General Practitioners Association for a study of one phase of hospital administration, in which it was felt that restrictive measures had been placed on some general practitioners by one of the hospitals in Greater Winnipeg. Since a thorough knowledge of all the facts was essential before any action could be taken, the President of the Association was instructed to form a committee to study that problem and bring in a report.

L. A. Sigurdson.

Concerning More Effective Medical Meetings

Emile Holman, M.D.
San Francisco, Calif.

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Attendance recently at several medical meetings provided unusual opportunities to observe that the effectiveness of many presentations was greatly impaired by inadequate projection or broadcasting equipment or by improper preparation of the material presented. A number of members in the audience freely and critically voiced their disappointment.

Perhaps it would be in order for the benefit of future participants to present the various desiderata that insure a successful meeting. The foremost condition is, of course, that the papers shall be of a high order of excellence, toward which goal the program committee shall direct its utmost efforts.

Second, the papers shall be presented effectively with the use of all available visual and auditory aids. An old proverb states that man learns one-tenth of what he hears, one-third of what he reads, one-half of what he sees, and nine-tenths of what he does! The first three conditions are happily blended in the usual oral presentation when amplified by lantern slide on motion picture The provision of these special facilities is clearly the responsibility of the secretary who shall, well in advance of the meeting, stipulate fully in writing to the hotel manager the exact character of the physical equipment desired. Moreover, the secretary and the presiding officer shall be at the hotel without fail the day before the meeting to see that the facilities provided are completely satisfactory. Axiomatic and requiring no emphasis is the understanding that the secretary shall be empowered to expend freely and without stint such funds as are needed to provide all indispensable equipment and that he shall hire the necessary trained and expert personnel to man this equipment properly. Far better to use profitably in this manner the financial resources of a society than to have them accumulate in the treasury year by year to what purpose no man knoweth.

On the day before the meeting, the secretary shall check the broadcasting equipment. Two microphones, easily adjustable to the height of the speaker, shall be provided, one available when the speaker faces the audience and one when he faces the projection screen, thus avoiding the annoying ebb and flow of the speaker's voice as he turns from manuscript to slide. The single shoulder-loop and coat-lapel microphones are equally effective and perhaps to be preferred if obtainable.

Amplification is frequently poorly regulated and shall be checked by a competent electrician immediately preceding the meeting. The optimum intensity of voice amplification should be arranged for the speaker's mouth at about 12 inches from the microphone. Simple directions for using a microphone to best advantage, printed in large letters on a card, should lie on the desk before the speaker reminding him (1) to enunciate distinctly, (2) to speak toward the microphone but not directly into it, (3) to speak from a distance of 10 to 12 inches, and (4) to speak to the rear of the hall, not toward the floor.

The speaker's rostrum placed just to the right of the screen should not face the audience vis-à-vis but should be directed at an angle halfway between the projection screen and the audience, thus permitting the speaker more easily to turn to his slides when necessary.

Desk arrangements should include a light, from the glare of which both the projection screen and the audience are protected, and a manuscript rack slanted 30° to 45° from the horizontal so that the speaker may, when reading his manuscript, direct his voice to the audience and not to the floor.

The secretary shall check the projection equipment and the meeting room with particular reference to the size of screen in relation to the size of room and to the possibility of darkening the room properly by shading the windows and by extinguishing all lighting in a convenient manner. The lantern should preferably be located about three-fourths of the way back from the platform to the rear of the room. If the size of the project image is too large at this distance for the size of the screen provided, the screen should be changed for a larger one, rather than having the lantern brought nearer to the screen. Obviously, the nearer to the platform the projector is placed, the smaller the image on the screen. The projection equipment should include also a slide rack suitable for projecting foreign slides 3¼ by 3¼ inches in size. Prospective speakers should inform

the secretary if a 35 mm. projector or a motion picture projector will be required. The size of projector, whether 8 or 16 mm., and the size of the reel must be stipulated.

The most important factor in an effective presentation concerns the lantern slides prepared by the speaker. If facts and figures are of sufficient importance to warrant presentation on a slide, the project image must be easily read by every member of the audience. Annoying and insulting to one's common sense is a slide bearing sufficient material for 5 to 10 minutes' reading which is whisked away at the end of 30 seconds to be placed by another slide equally weighted with material and just as promptly removed before even the simplest orientation is possible. All too frequently in such instances so much material has been compressed on the slide that the projected image is legible only to the speaker and to the auditors in the front seats. It was stated facetiously, albeit purposefully, at a recent meeting that "boiling in oil" was the only meet reward for the perpetrator of such an unreadable slide and that an equally deserved and similar fate should await the chief of staff or head of a department that permits such an affront to sound sense. The audience enthusiastically applauded the suggestion. Heads of departments and chiefs of staff responsible for their protégés are hereby warned of the evident sensibilities of the audience in this particular!

Prospective speakers are strongly urged not to include more material on a slide than can be written comfortably in ordinary typing or writing on an area 4 x 3¼ inches, this being the size of the ordinary slide. Never should a chart or table be made on a large sheet and transferred to a slide by photographing the sheet unless the figures on the chart have been made large enough by an artist to be reduced to ordinary type size when photographed. If the facts or figures cannot be easily read directly from the slide by holding the slide up to a light, they will not be enlarged sufficiently by projection to permit easy reading by the audience. If this test alone is invariably made and rigidly observed, little criticism of a slide will be heard.

In determining the number of slides that can be shown in the time allotted, one should remember Harvey Cushing's dictum that at least one minute be assigned to each slide; for a 15 minute talk only 12 to 15 slides can be shown comfortably and then only if most of the talk centres around the slides without long intervening sections of manuscript.

In presenting a slide, the important facts should be pointed out by the speaker. This demands a proper pointer. The ordinary electric pointer, which depends on small batteries, frequently fails to throw a light beam of sufficient brilliance to be seen on the screen. A most instructive series of anatomic slides was presented at one of the meetings of the American Medical Association this spring, the important lessons of which were lost to most members of the audience because the speaker's careful descriptions could not be accurately followed due to the invisible light beam from a defective pointer. An electric pointer operating on an electric outlet* throws upon the screen a bright arrow visible to the entire audience. This, together with a 12 foot cord with a multiple outlet plug which will permit cutting in on the circuit of the electric light to the speaker's rostrum. should be part of the property of every society, to be handed down from secretary to secretary. In addition, it is suggested that the secretary carry as part of the chattels of the society a gavel, the manuscript rack previously described, and the special slide rack for foreign slides.

The presiding officer is strongly urged to use the gavel more frequently and more courageously in checking a speaker's volubility: one vigorous stroke two minutes before and two vigorous strokes at the expiration of his allotted time. The speaker is more likely to obey the warning from a gavel than from a hidden electric light because he then realizes that the audience too has been warned that his time has expired!

It is the secretary's additional duty to see that a pitcher of water and glasses are made easily available for the benefit of the occasional speaker whose voice may falter due to excessive dryness, a physiologic reaction which is part of the stress phenomenon. No speaker need feel apologetic about this phenomenon, since frequent observations have indicated that, unless it occurs, the quality of presentation may suffer!

Most of these suggestions are axiomatic and self-evident. Unfortunately, they are at times more frequently sinned against than observed. Perhaps by directing the attention of secretaries to their duties and by warning the heads of departments and chiefs of staff as to their responsibility for the presentations by their subordinates, there will be less need for future criticism.

—Emile Holman.

*Manufactured by Ednalite Optical Co., Peekskill, N.Y.

Book Reviews

Fool's Haven

Fool's Haven is a protest against the immunity enjoyed by faith-healers. It is the story of a young scientist and of his sweetheart who dies because the girl's mother rejects medical help and puts her in the hands of a faith-healer. Both mother and "healer" are arraigned. The mother is convicted. The healer goes free.

It is the author's contention that the teachers of such beliefs are equally guilty with those who follow their teaching.

Faith-healing is difficult to combat because it is bound up with religious belief and that is sacrosanct. When emotional conviction is profound there is no way by which it can be moved. Such deluded people are impervious to reason and are seldom influenced even by the most gross examples.

Should death come, they say that it is proof that faith was not strong enough. Success after an operation is merely evidence of faith—with faith alone the patient would have got well. Death after an operation, on the other hand, is proof of medical incompetence. The likely does not always happen and when a gloomy prognosis is upset they give faith the credit.

Every year lives are lost because of reliance on prayer alone. No one seeks to deny to the sick the comfort that prayer may bring, but complete reliance on it by parents in the face of serious illness in their children, should be regarded as an interference with the liberty of the subject (or citizen) and as such should be punished.

The fact that the "healers" are never held culpable is, thinks the author, a legal fault. Perhaps the certainty that they also would be punished might make them less inclined to give harmful advice, although not even this is likely to restrain a zealot.

It is much easier to see the fault than to find the remedy. Faith-healing is a sort of magic and people have never lost their credulity about the power of magic. The chiropractor practices it in a mild fashion, the faith-healer to a greater degree. Latent in most people and overt in very many is the primitive belief that powers beyond our comprehension can be invoked and can, if they will, reverse the laws of nature.

The author of this tale is doing battle against this strong and strange thing and, especially, against those of its exponents who persuade others to their hurt. The book deserves success but it is neither shocking in its power nor overwhelming in its logic and it would need to be both in such a controversy.

It is interesting reading and could with profit be recommended to those who may think "there's something in faith-healing" but are not yet convinced and therefore are still amenable to reason.

Fool's Haven, by C. C. Cawley, 238 pages, House of Edinboro, 21 Edinboro Street, Boston 11, Mass. Price $2.75.

The Transvestist

For some time now a person called Christine has been bobbing in and out of the news. First of all it was not Christine but George that we heard about. Just how George originally became newsworthy I have forgotten if I ever knew; but it became noised abroad that he wasn't really a "he" but a "she" or an "it" or whatever an intersex ought to be called.

The public are, of course, well instructed on these matters because, whenever they can manage it, journalists give every case the fullest possible publicity; not because such information is of the slightest educational or moral value to their readers but because these readers smack their lips when a little salacity is dished up to them and that is good for sales.

The public, therefore, assumed that before long they would read about an operation and sure enough they did. But it turned out to be the same sort of operation that the Coptic monks used to perform with so much financial profit to themselves. George, it would seem, was physically quite normal but he was a transvestist. On this ground his surgeons justified to themselves a procedure which is universally abhorred.

George, now Christine, was however satisfied. Not only did this voluntary eunuch assume a woman's garb but he had come as close to a metamorphosis as was possible. The curious public, their appetites whetted by news and pictures, hungered for a look at the strange creature who so reversed a well known Freudian concept. So George-Christine for a while became a star of stage, screen and television while curious people looked up the word "Transvestist" in their dictionaries to see what it meant.

The medical reader, to whom such things are of much greater and graver importance, might perhaps be unable to learn more than the layman from the books at hand. But there is an excellent reservoir of this and like information in Podolsky's "Encyclopedia of Aberrations." The subtitle is "A Psychiatric Handbook" and it contains a vast amount of information not easily found (certainly not so easily found) in even a well-stocked library.

The arrangement is, of course, alphabetical. Sometimes there is merely a short definition of a word or term. Sometimes one or more paragraphs are necessary, and enough, to put one au fait with the topic. Some subjects are given a

page or less; others fill several pages. There are long and short original contributions and also aritcles that have appeared in leading journals.

Much of the material is of prime importance to the student or practitioner of psychiatry, but with all of it practitioners in every field should in some degree be familiar. Aberrations are not rare. When present in a large degree they are not missed but the doctor wants to know the significance of his patient's behaviour. When present in a small degree they may pass unrecognized and may easily distort a picture which knowledge of them would make clear.

Such common things as Anxiety State and Antisocial Behaviour; such not uncommon things as Phobias and Depressions; such uncommon things as Dream Murders and Necrophilia are among the hundreds of topics considered, and Tranvestism is there also, occupying two pages.

The book is not without its faults chief of which is the absence of an index. Even if there were cross-references, which there are not, an index would still be desirable. For the rest one would like to see a little more on some topics and a little less on others; but, taking it all in all, it is an interesting and useful book in which most practitioners would find much profitable reading.

Encyclopedia of Aberrations: A Psychiatric Handbook, Edited by Edward Podolsky, M.D., State University of New York Medical College; with a foreword by Alexandra Adler, M.D., New York University College of Medicine, 1953, Philosophical Library Inc. 15, East 40th Street, New York. Price $10.00.

rational . . . effective . . . proven,
in cough control . . .

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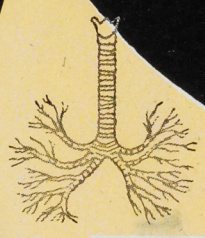

RATIONAL— employs in each 5 cc. of aromatic syrup vehicle: glyceryl guaiacolate 100 mg. (unexcelled for increasing respiratory tract fluid), and desoxyephedrine 1 mg. (relieves bronchiolar constriction and improves patient's mood).

EFFECTIVE — stimulates maximum removal of sputum, with least frequent and least taxing cough.

PROVEN— as reported in clinical test: "[Robitussin] was significantly superior to the other preparations studied."*

*Cass, L. J. and Frederik, W. S.: Amer. Pract. and Dig. of Treat., 2:844, 1951. (In this study Robitussin was compared with ammonium chloride and terpin hydrate.)

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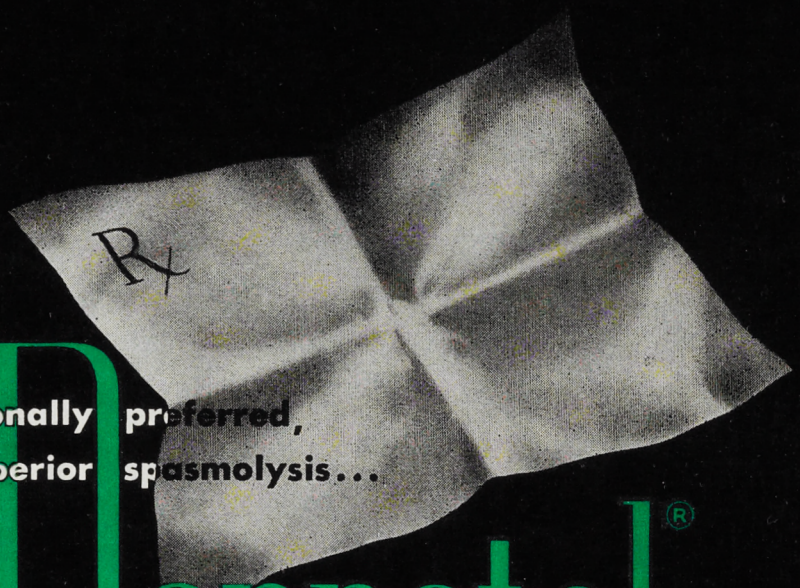

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Employs natural belladonna alkaloids, in optimum standardized proportions,* for relief of gastrointestinal, urinary, biliary or uterine spasm. Prescribed by more physicians than any other spasmolytic.

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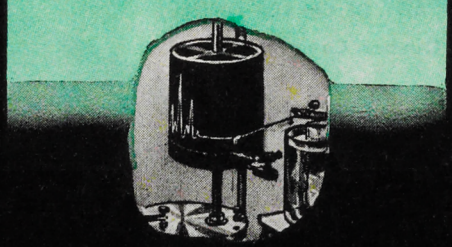

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Manitoba Medical Association

(Canadian Medical Association, Manitoba Division)

46th Annual Meeting
October 15-16, 1953

Royal Alexandra Hotel
Winnipeg

This Meeting will be preceded on October 13th to 15th by a Joint Meeting of:

1. Associated Hospitals of Manitoba.
2. Manitoba Association of Registered Nurses.
3. Manitoba Public Health Association.
4. Manitoba Women's Hospital Auxiliaries Association.
5. Manitoba Association of Licensed Practical Nurses.
6. Manitoba Division, Canadian Society of Radiological Technicians.
7. Manitoba Branch, Canadian Society of Laboratory Technologists.
8. Manitoba Dietetic Association.
9. Canadian Association Medical Record Librarians.

Thursday, October 15th

Evening

6.30 Vice-Regal Suite:
President's Dinner to Retiring Executive.

8.00 Meeting of Executive Committee.

Friday, October 16th

Afternoon

4.00 Colonial Room:
Business Session:

1. Calling the Meeting to order.
2. Minutes of last Meeting.
3. Communications.
4. Nomination of Officers.

The Nominating Committee will present the following for 1953-54:

President—
Dr. W. F. Tisdale, Winnipeg.

1st Vice-President—
Dr. R. W. Whetter, Steinbach.

2nd Vice-President—
Dr. Ruvin Lyons, Winnipeg.
Dr. David Swartz, Winnipeg.

Honorary Secretary—
Dr. J. E. Hudson, Hamiota.

Honorary Treasurer—
Dr. J. McKenty, Winnipeg.
Dr. L. A. Sigurdson, Winnipeg.

Member at Large (to complete the unexpired term of Dr. A. S. Little)—
Dr. H. L. McNicol, Flin Flon.

Member at Large, Rural (for 3 years)—
Dr. R. S. Harris, Virden.
Dr. G. T. McNeill, Carberry.

Member at Large, Winnipeg (for 3 years)—
Dr. H. E. Bowles, Winnipeg.
Dr. A. E. Childe, Winnipeg.

5. Report of Executive Committee.
6. Report of Honorary Treasurer.
7. Reports of Committees.

Evening

6.30 Tea Lounge (Gold Room): Refreshments.

7.00 Dinner:
Association Members only.

C.M.A. Presidential Address:
Dr. C. W. Burns, Winnipeg.

Greetings from World Medical Association,
Dr. F. C. Routley, Toronto.

8.00 Colonial Room:

Presidential Address:
Dr. C. Wiebe, Winkler.

Business Session (Continued).

8. Reports of Committees, including Economics and the Resolutions Committee.

Representatives of the Board of Trustees, Manitoba Medical Service, will address the Meeting.

9. Election of Officers.
10. Unfinished Business.
11. New Business.
12. Adjournment.

Various Sections may arrange meetings.

Department of Health and Public Welfare

Comparisons Communicable Diseases — Manitoba (Whites and Indians)

DISEASES	1953		1952		Total	
	Aug. 9 to Sept. 5,'53	July 12 to Aug. 8,'53	Aug. 10 to Sept. 6,'52	July 13 to Aug. 9,'52	Jan. 1 to Sept. 5,'53	Jan. 1 to Sept. 6,'52
Anterior Poliomyelitis	753	494	200	191	1340	431
Chickenpox	50	100	43	52	945	1053
Diphtheria	0	0	0	0	4	2
Diarrhoea and Enteritis, under 1 yr.	24	5	28	14	92	116
Diphtheria Carriers	0	0	0	0	0	0
Dysentery—Amoebic	0	0	0	0	0	0
Dysentery—Bacillary	6	1	1	2	12	16
Erysipelas	2	0	3	0	24	12
Encephalitis	3	0	1	1	5	3
Influenza	17	2	5	7	199	127
Measles	30	31	42	76	2267	1130
Measles—German	0	4	1	0	39	12
Meningococcal Meningitis	1	2	1	1	24	12
Mumps	35	51	79	79	830	1062
Ophthalmia Neonatorum	0	0	0	0	0	1
Puerperal Fever	0	0	0	0	0	1
Scarlet Fever	12	14	16	23	289	516
Septic Sore Throat	4	49	1	5	75	68
Smallpox	0	0	0	0	0	0
Tetanus	1	0	0	0	2	3
Trachoma	0	0	0	0	0	0
Tuberculosis	64	77	66	61	602	708
Typhoid Fever	0	0	2	1	1	3
Typhoid Paratyphoid	0	0	0	0	0	2
Typhoid Carriers	0	0	0	0	0	0
Undulant Fever	0	3	1	1	9	5
Whooping Cough	24	8	29	27	107	379
Gonorrhoea	130	103	103	128	822	921
Syphilis	4	6	5	10	60	82
Infectious Jaundice	0	1	0	0	2	4
Tularemia	18	12	1	2	214	33

Four-Week Period August 9th to September 5th, 1953

DISEASES (White Cases Only) *Approximate population.	*798,000 Manitoba	*861,000 Saskatchewan	*3,825,000 Ontario	*2,952,000 Minnesota
Anterior Poliomyelitis	753	368	625	738
Chickenpox	50	79	150	....
Diarrhoea and Enteritis, under 1 yr.	24	1	....	....
Diphtheria	....	1	....	4
Diphtheria Carriers	....	....	....	....
Dysentery—Amoebic	....	....	....	2
Dysentery—Bacillary	6	9	8	23
Encephalitis Epidemica	3	2	....	1
Erysipelas	2	3	1	....
Influenza	17	2	2	7
Jaundice Infectious	18	12	22	49
Malaria	....	....	....	2
Measles	30	54	101	19
German Measles	....	8	23	....
Meningitis Meningococcus	1	....	5	2
Mumps	35	22	167	....
Ophthal. Neonat.	....	....	....	....
Puerperal Fever	....	....	....	....
Scarlet Fever	12	11	33	23
Septic Sore Throat	4	6	3	18
Smallpox	....	....	....	....
Tetanus	1	1	....	....
Trachoma	....	....	....	....
Tuberculosis	64	42	84	200
Tularemia	....	....	....	....
Typhoid Fever	....	....	4	3
Typh. Para.-Typhoid	....	....	1	....
Typhoid Carriers	....	....	....	....
Undulant Fever	....	....	1	11
Whooping Cough	24	8	147	14
Gonorrhoea	130	....	199	....
Syphilis	4	....	45	....

***DEATHS FROM REPORTABLE DISEASES**

For the Month of August, 1953

Urban—Cancer, 59; Lethargin Encephalitis, 1; Measles, 1; Pneumonia, Lobar, 1; Pneumonia (other forms), 7; Pneumonia (of newborn), 4; Poliomyelitis, 26; Tuberculosis, 3; Diarrhoea and Enteritis, 1; Infectious Hepatitis, 1. Other deaths under 1 year, 25. Other deaths over 1 year, 192. Stillbirths, 19. Total, 236.

Rural — Cancer, 35; Influenza, 1; Pneumonia, Lobar, 3; Pneumonia (other forms), 13; Pneumonia (of newborn), 1; Poliomyelitis, 1; Tuberculosis, 5; Hydatid Disease, 1; Diarrhoea and Enteritis, 2; Septicaemia and Pyaemia, 1; Tetanus, 1. Other deaths under 1 year, 21. Other deaths over 1 year, 180. Stillbirths, 13. Total, 214.

Indians — Pneumonia (other forms), 1; Tuberculosis, 1; Whooping Cough, 1. Other deaths under 1 year, 4. Other deaths over 1 year, 5. Stillbirths, 0. Total, 9.

♦

Poliomyelitis has remained our chief point of interest since the last issue two months ago. At date of writing 1,866 cases have been reported and of these 70 have died. This has been much the worst epidemic of polio which has occurred in Manitoba. Of the 1,866 cases, 1,118 have been reported with paralysis. At one time there were 76—1953 cases in respirators at the King George Municipal Hospital. A tremendous amount of work has been done and great praise is due to many persons for the way they have worked in this serious epidemic.

Fortunately the other communicable diseases have shown a low incidence, in fact, measles is the only one with a greater number of cases than polio.

Detailmen's Directory

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Each Mejalin Capsule supplies:

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Riboflavin	1 mg.
Niacinamide	10 mg.
Pyridoxine hydrochloride	0.4 mg.
Calcium d-pantothenate	1.7 mg.
Vitamin B_{12} (crystalline)	1 mcg.
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Biotin	0.02 mg.
Desiccated liver	300 mg.
Iron (from ferrous sulphate)	7.5 mg.

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